

SERVICEANLEITUNG



Commodore

1540/1541

TECHNICAL MANUAL
DEUTSCH/ENGLISCH

Commodore Single Disk Drive

Technical Manual

Model 1540/1541



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Chapter One

1.1 Scope

In this chapter, a description is made of the procedures necessary for servicing the Model 1540/1541 Floppy Disk Drive.

1.2 Unpacking

Special care should be exercised during unpacking not to damage the unit.

Unpacking procedures are as follows:

- a) Remove cardboard sleeve from styro-foam box
- b) Open 'styro-foam' box and remove drive
- c) Check the drives front door for proper operation

```
*****
*                                     *
*           Caution                 *
*                                     *
*   Do Not Use Magnetized Tools    *
*                                     *
*****
```

1.3 Protection against noise

A weak signal from the media is detected in the head section of the drive. Hence, do not install the drive near a TV set or other areas where electromagnetic noise is generated. (i.e. motors, air-conditioners, etc)

1.7 Input/Output Cable

The length of the cable between the host and the drive (between the host and the last drive when the drives are daisy chained) should not exceed 5 meters (16 feet).

1.8 DC power source

The drive is powered by a internal power supply providing the drive with +12V and +5V.

1.9 Initial inspection

The drive can be briefly inspected for its operation by the following procedure. Install the drive, connect the power and I/O cables. Turn drive on and make sure the front panel power lamp is on. Proceed to step 2.2.

1.10 Outline of functions

The 1540/1541 Minifloppy Disk Drive mechanism is composed of the data read/write head, track positioning mechanism, spindle drive mechanism and eject mechanism.

1.11 Read/Write Head

The Read/Write head uses a glass-bonded, ferrite/ceramic head. Track-to-track erasing is accomplished by the straddle erase method. The surface of the Read/Write head is mirror-ground to minimize wear of the head and media. Also, the head is designed in such a way that the maximum signal can be obtained from the media surface.

1.12 Track positioning mechanism

Positioning of the Read/Write Head is accomplished by a stepping motor and steel belt. The stepping motor rotates clockwise or counter-clockwise by two steps per track. The control circuit on the logic board selects the direction and number of step to the desired track.

1.13 Spindle drive mechanism

The spindle drive motor operates on 12 VDC and turns the spindle, through a belt drive, at 300 revolutions per minute. The speed of the drive motor is controlled by a feedback signal from a tachometer which is housed in the drive motor assembly. The feedback signal controls a servo amp that supplies the 12 VDC drive current.

1.14 Eject mechanism

When the media is inserted in the Disk Drive and the door is closed the media is clamped by the spindle and hub. At this time the ejector mechanism is loaded by the insertion of the disk and locked. When the door is opened, the ejector mechanism is unlocked and the media pops out of the door.

Chapter Two

2.1 Mechanism Explanation

The 1540/1541 mechanism is installed in the system horizontally, however the drive will function if mounted vertically. The mechanical parts of the drive include an aluminum chassis, a stepping motor, head positioning assembly, drive motor, a hub and spindle assembly for centering and retaining the media during operation. The magnetic head is of a glass ceramic construction.

2.2 Function explanation

The drive is itself an independent memory device. The drive is composed of a media clamp rotating mechanism, ahead positioning mechanism and an eject mechanism. When the front door opens, the media can be inserted. All positioning operation excluding insertion and removal of the media are controlled by the internal guide mechanism. Closing the front door causes the media clamp mechanism to operate. Two operations are performed in the following order:

- a) The media is centered.
- b) The media is clamped and retained between the spindle and the hub.

The spindle and hub rotate at 300 r.p.m. through a closed-loop control circuit employing a D.C. motor/tachometer. It is important that the relationship between the head and the media is maintained correctly during operation. For this purpose, a pressure pad is used to hold and press down the media (about 12g) from the opposite side of the head, to maintain the correct contact with the head. This head assembly is coupled by a metal band to a four phase stepping motor the performs the track positioning. One step of the stepping motor corresponds to a 1/2 track movement. Use of a high-speed stepping motor and metal band drive, this series of disk drives can perform access operations at a very high speed.

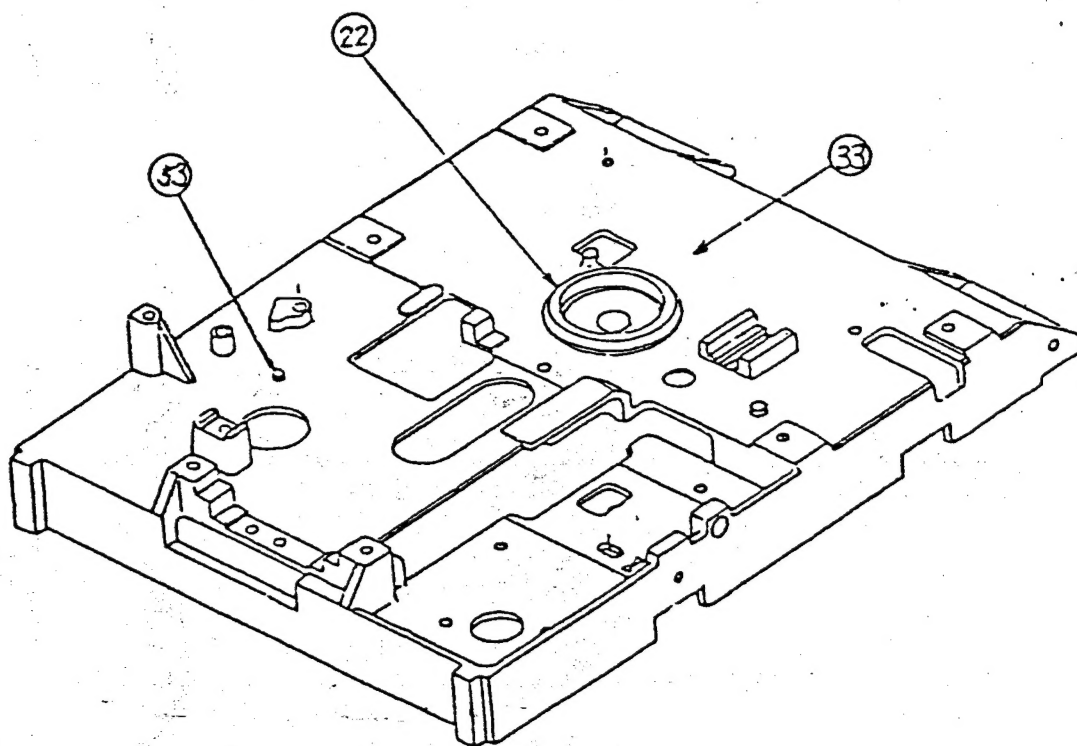
2.3 Assembly procedure

2.3.1 The housing assembly; install the eject pin and the spindle.

2.3.2 The housing assembly; on the reverse side install the spindle pulley.

2.3.3 FIG 1, The housing unit.

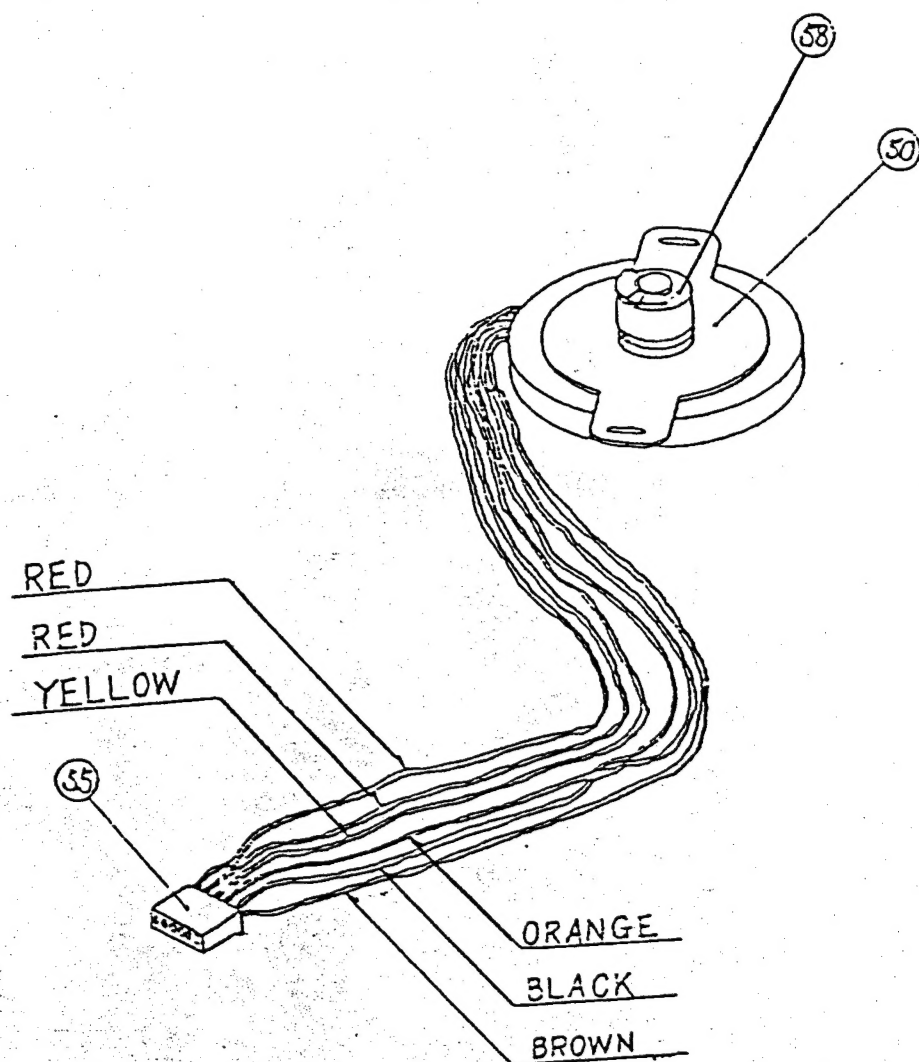
Part	Description
22	spindle
33	housing assembly.
53	eject pin



2.3.4 The stepping motor assembly; install the stepping pulley.

2.3.5 FIG 2, The stepping motor unit

Part	Description
50	stepping motor assembly
55	connector housing
58	stepper pulley



2.3.6 The D.C. motor assembly; install the motor pulley.

2.3.7 FIG 3, D.C. motor and control PCB

Part	Description
44	motor control PCB
48	D.C. motor
51	connector housing
59	D.C. motor pulley

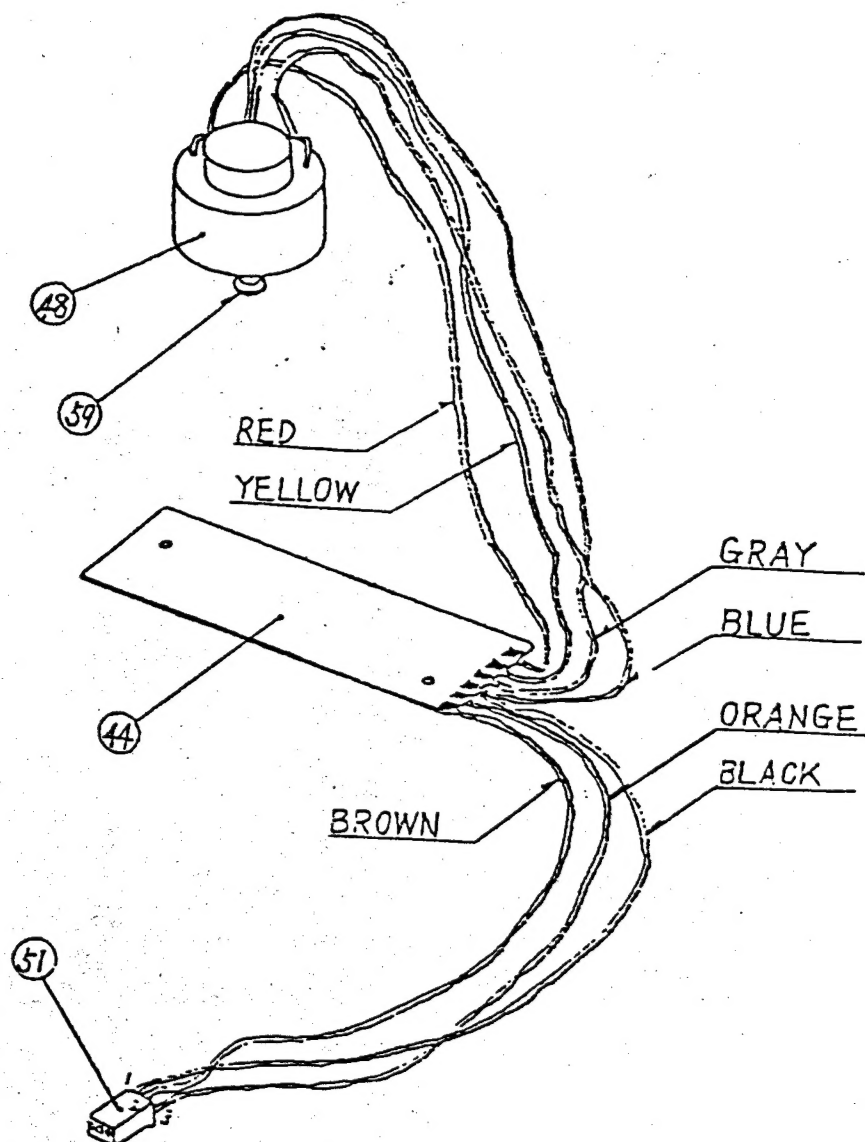


FIG. 6

Part	Description	Part	Description
20	binder screw	37	washer
21	diskette guide	38	eject spring
28	LED clamp	39	eject plate
29	front panel	40	slider
30	Flush screw	43	diskette guide
31	LED assembly	52	connector housing
32	LED holder ring		

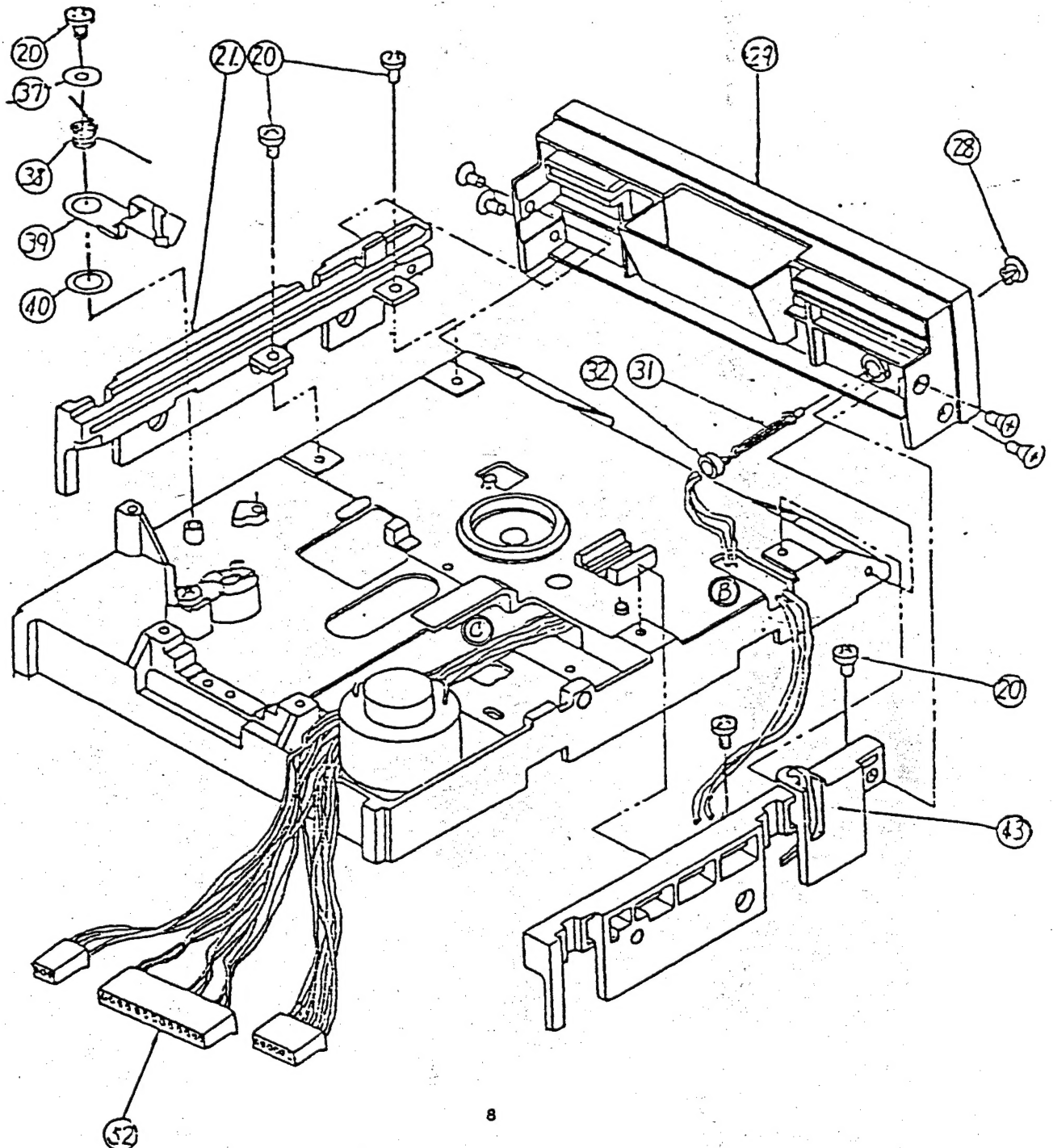


FIG 7.

Part	Description
15	binder screw
18	binder screw
24	tension pulley
25	guide shaft keeper
26	guide shaft
34	metal band
35	washer
36	head assembly
56	tension spring

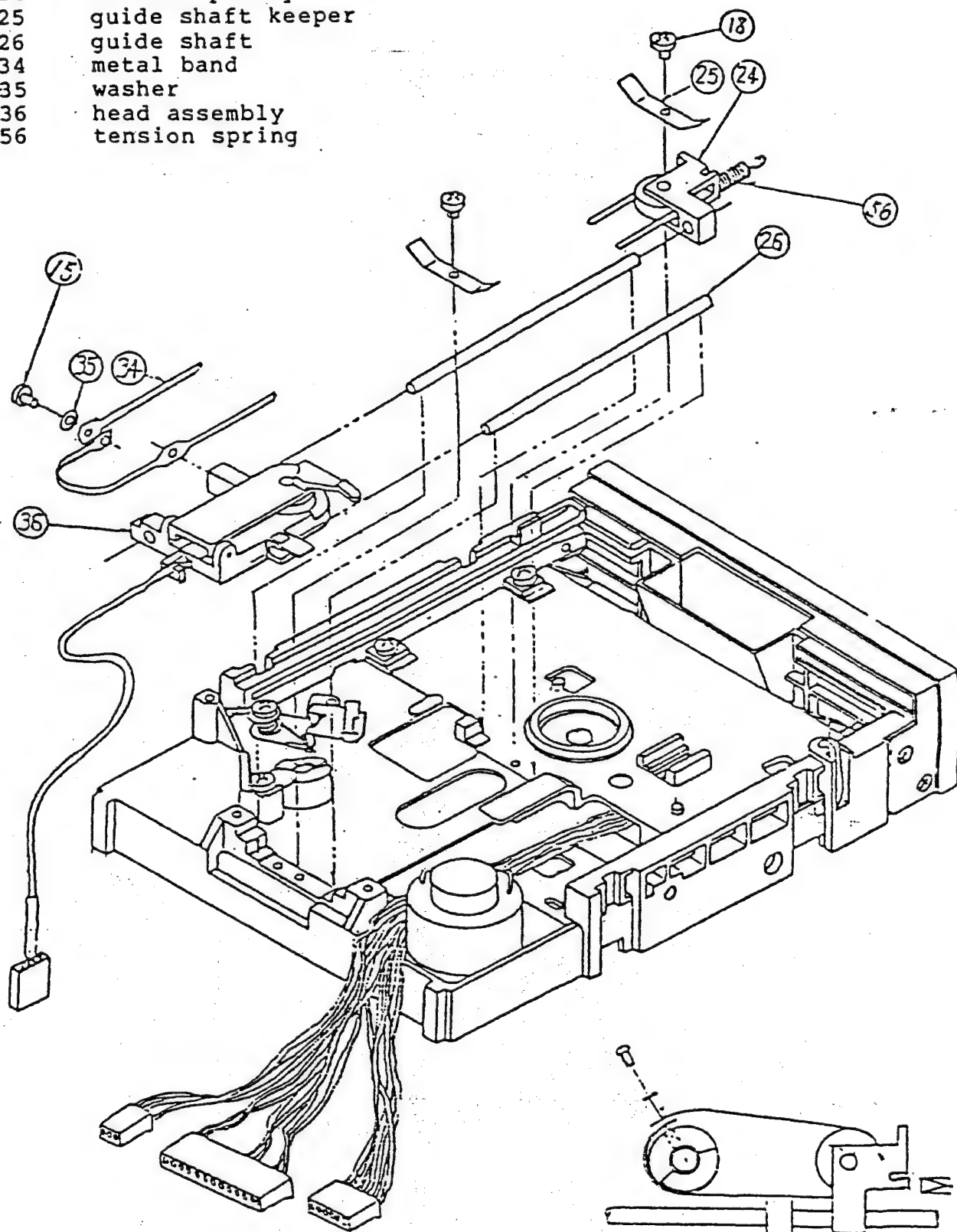


FIG 8

Part	Description
20	binder screw
45	cable clamp
49	cable ties

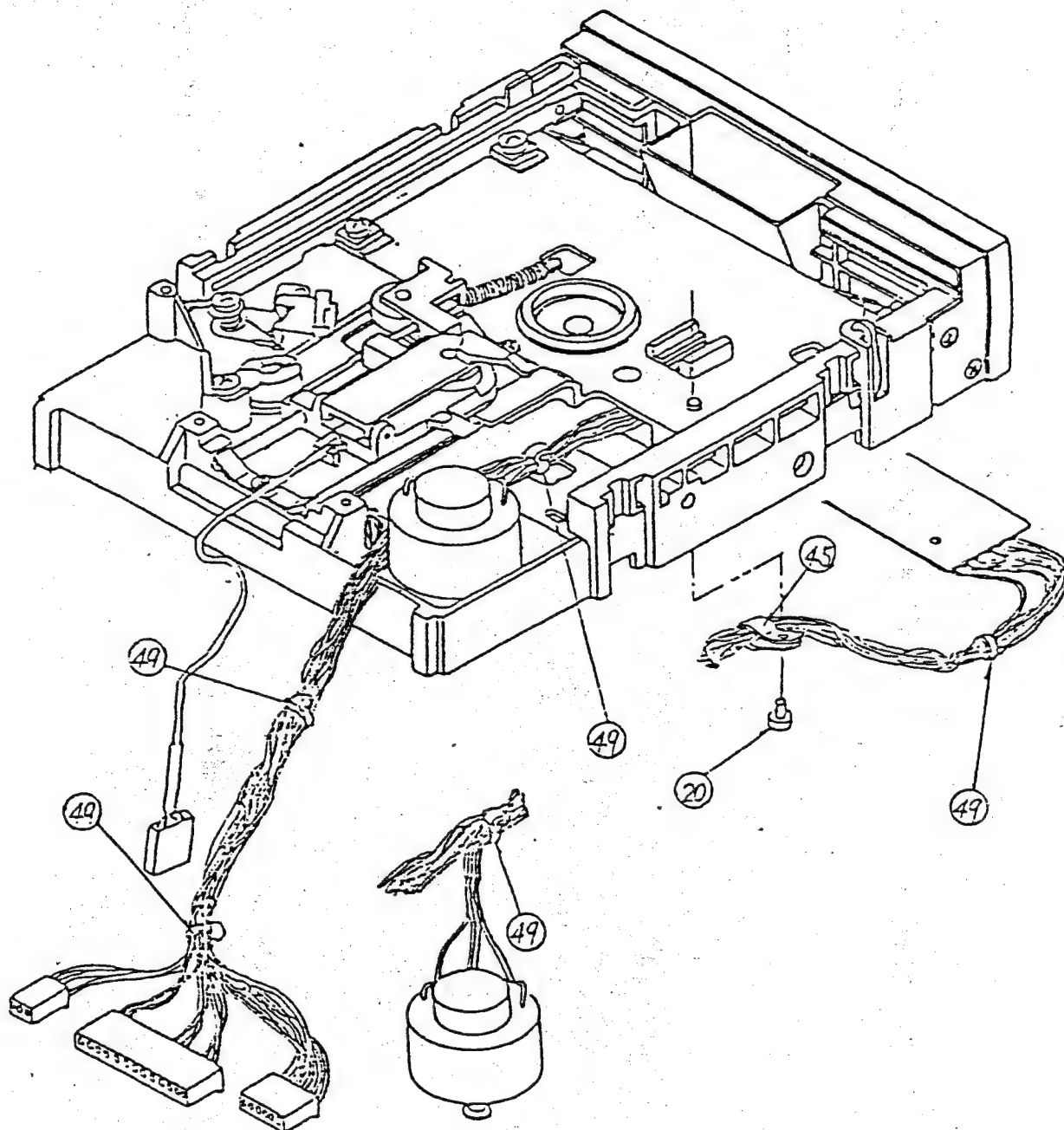
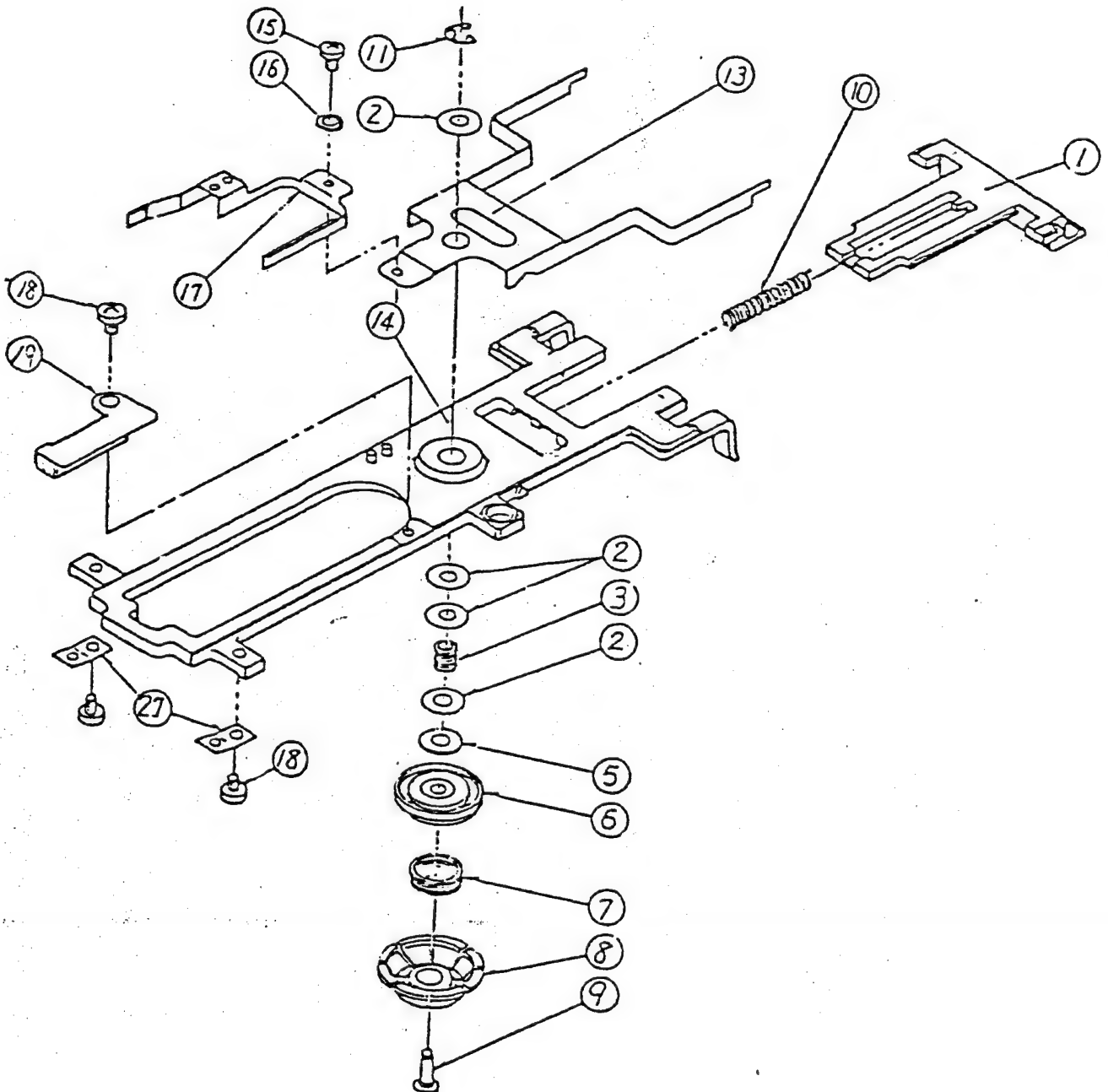


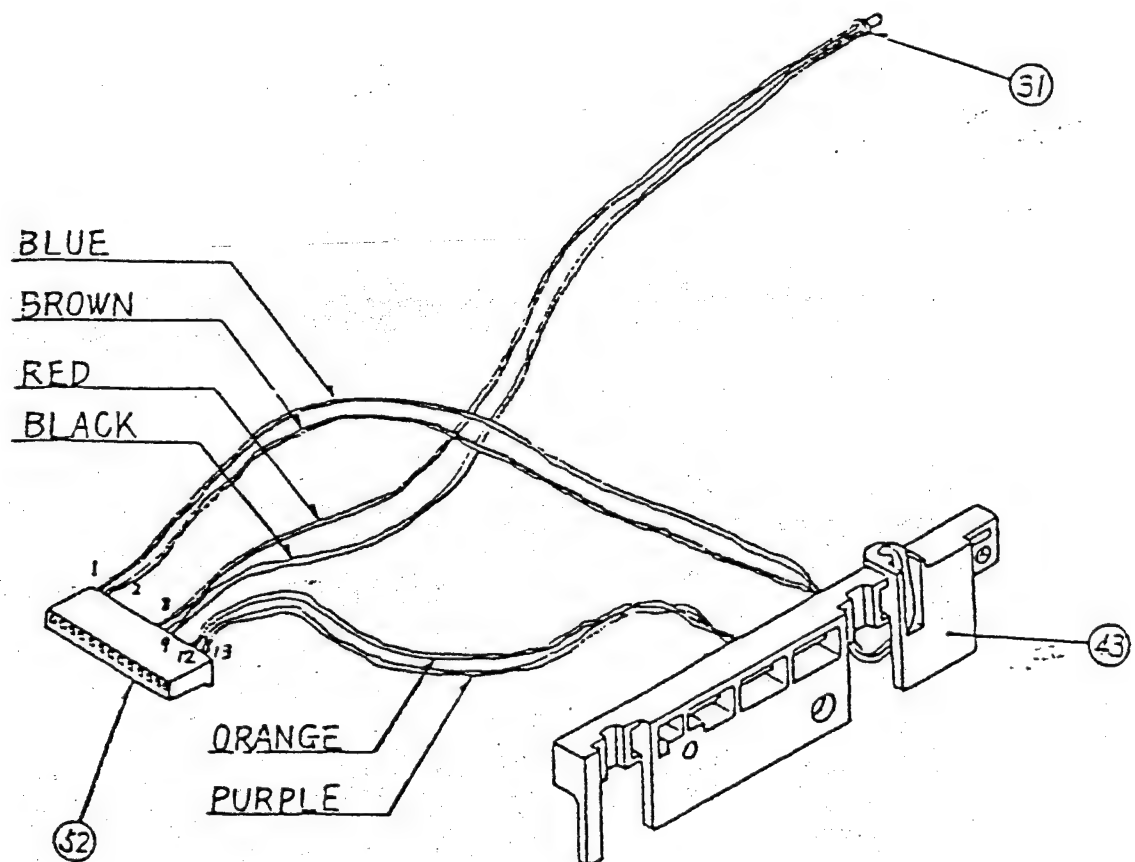
FIG 9

Part	Description	Part	Description
1	door assembly	13	hub support
2	collar	14	hub frame
3	clamp spring	15	binder screw
5	thrust washer	16	spring washer
6	collet assembly	17	arm support assembly
7	hub spring	18	binder screw
8	hub	19	pad plate assembly
9	hub shaft	27	hinge spring
10	door spring	60	collet
11	E-washer	61	collet bearing



2.3.8 FIG. 4, Diskette guide, LED assembly and connector housing.

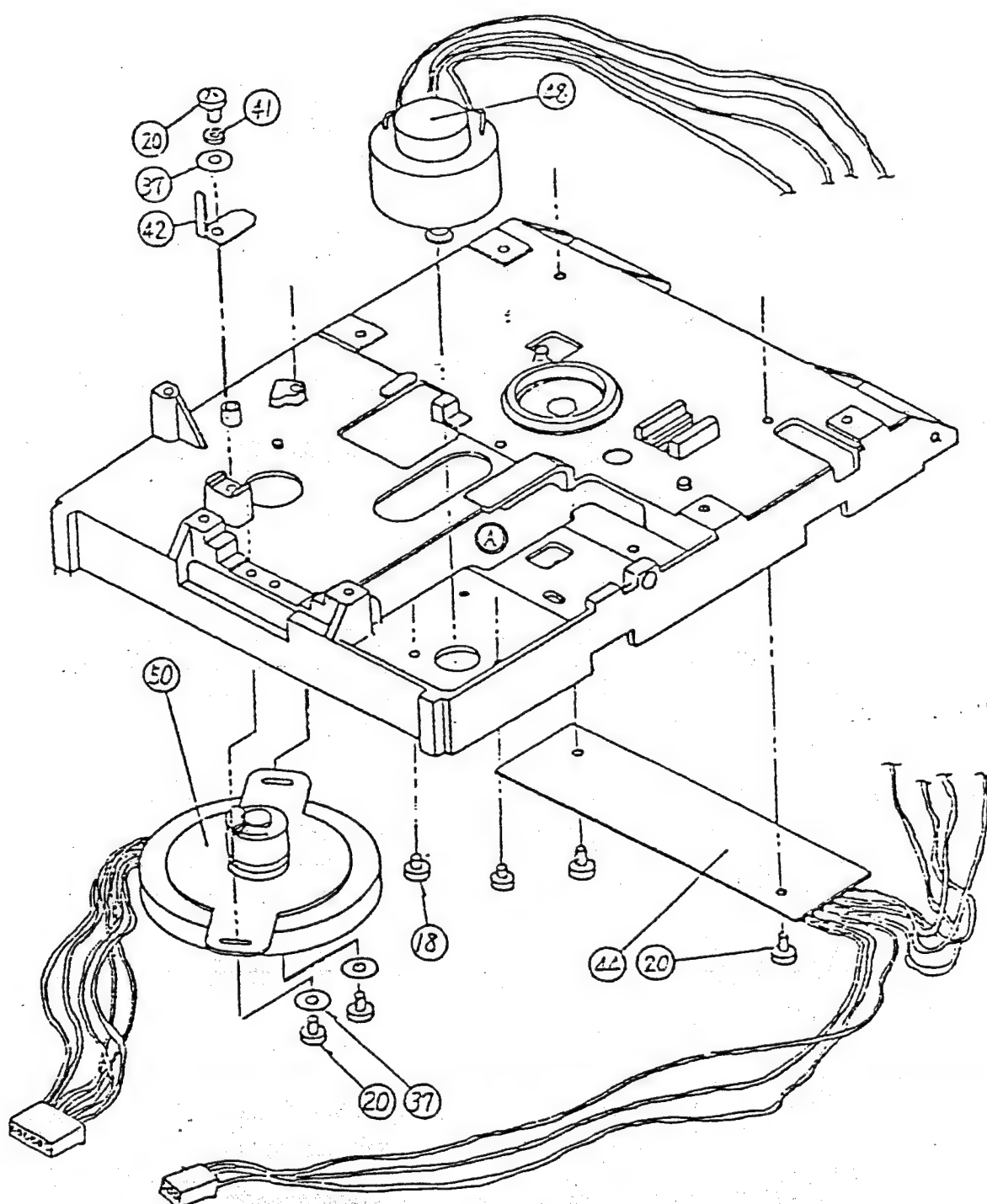
Part	Description
31	LED assembly
43	diskette guide
52	connector housing



- 2.3.9 Secure the D.C. motor from the reverse side of the housing assembly with two screws.
- 2.3.10 Put the motor control PCB into hole 'A' and secure it with two screws.
- 2.3.11 Secure the stepping motor with two screws.
- 2.3.12 Secure the carriage stopper with a screw.
- 2.3.13 Install the connector housing '52' into the hole 'B' and remove through hole 'C'.
- 2.3.14 Secure the two diskette guides '21' and '43' with two screws each.
- 2.3.15 Install the LED holder in the front panel.
- 2.3.16 Insert the LED assembly into the LED holder ring.
- 2.3.17 Install the led into the LED holder, then push the LED holder ring onto the LED holder.
- 2.3.18 Attach the front panel with four flush screws.
- 2.3.19 Secure the eject plate with a screw.
- 2.3.20 Wind the metal band around the tension pulley.
- 2.3.21 Insert the guide shafts into the head assembly. Install the tension pulley as shown in figure 8
- 2.3.22 Secure the guide shaft keepers by two screws each.
- 2.3.23 Wind the metal band around the stepper pulley and secure it with a screw to the stepper motor pulley.
- 2.3.24 Hook the spring to the tension pulley and install unit in the slot in the housing assembly.
- 2.3.25 Hook the opposite end of the spring to the housing assembly.
- 2.3.26 Fasten cable ties to the cables.
- 2.3.27 Secure the cable clamp with a screw as shown in FIG 8.
- 2.3.28 Secure the arm support assembly with a screw to the hub support.
- 2.3.29 Insert the hub shaft into the hub, the hub spring, the collet assy, the thrust washer, the collar, the clamp spring and two collars.
- 2.3.30 Insert the hub shaft into the frame and the hub support and fasten it at the E-washer.
- 2.3.31 Set the door assembly and the door spring at the hub frame.
- 2.3.32 Secure the pad plate assembly with a screw to the frame at the location shown in FIG 9
- 2.3.33 Secure the two hinge springs with two screws each.

FIG. 5

Part	Description
18	binder screw
20	binder screw
37	washer
41	spring washer
42	carriage stopper
44	motor control PCB
50	stepping motor assembly



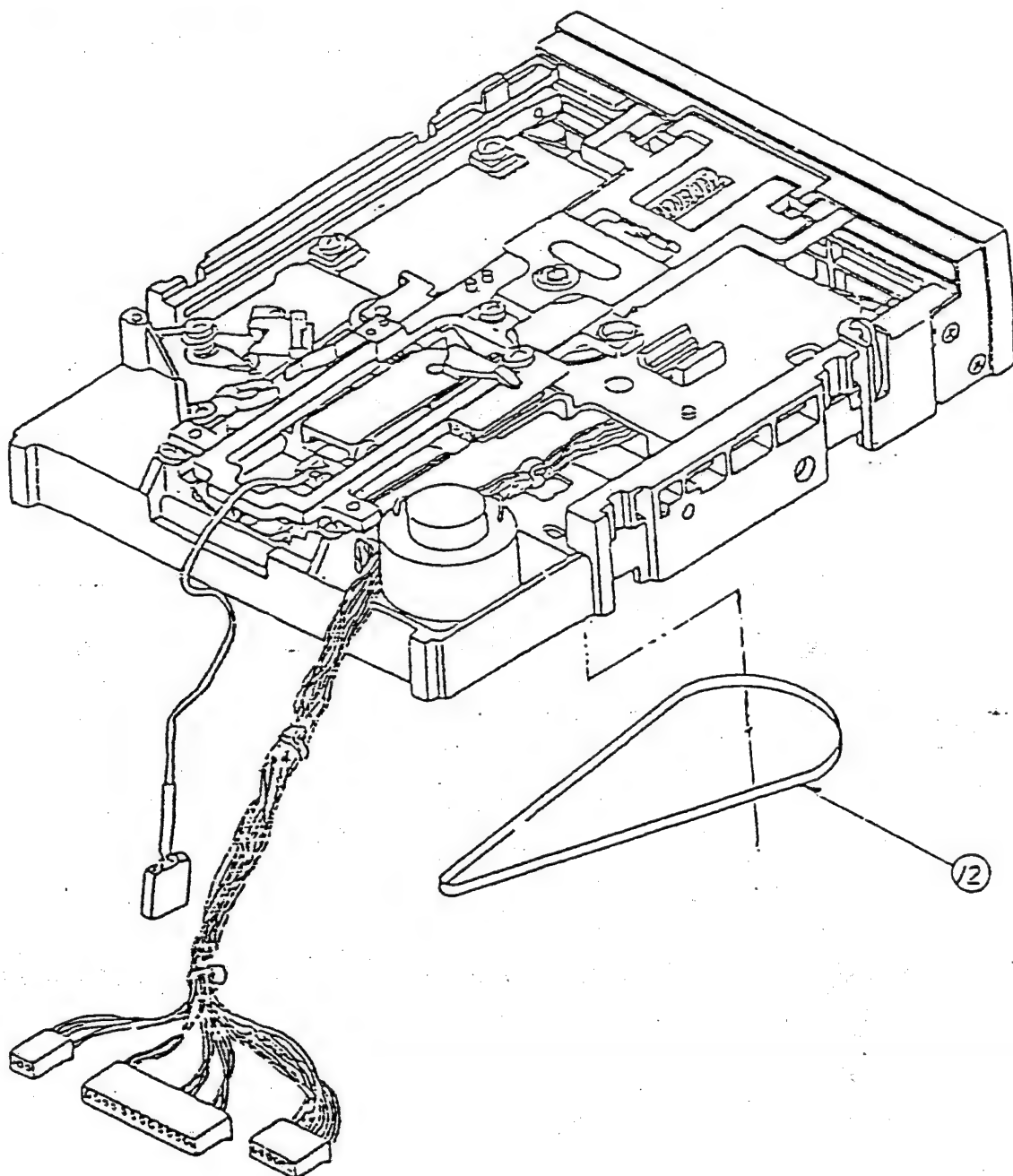
2.3.36 Place the belt over the D.C. motor pulley and partially on the spindle pulley.

2.3.37 By turning the spindle pulley the rest of the belt will seat completely on the pulley.

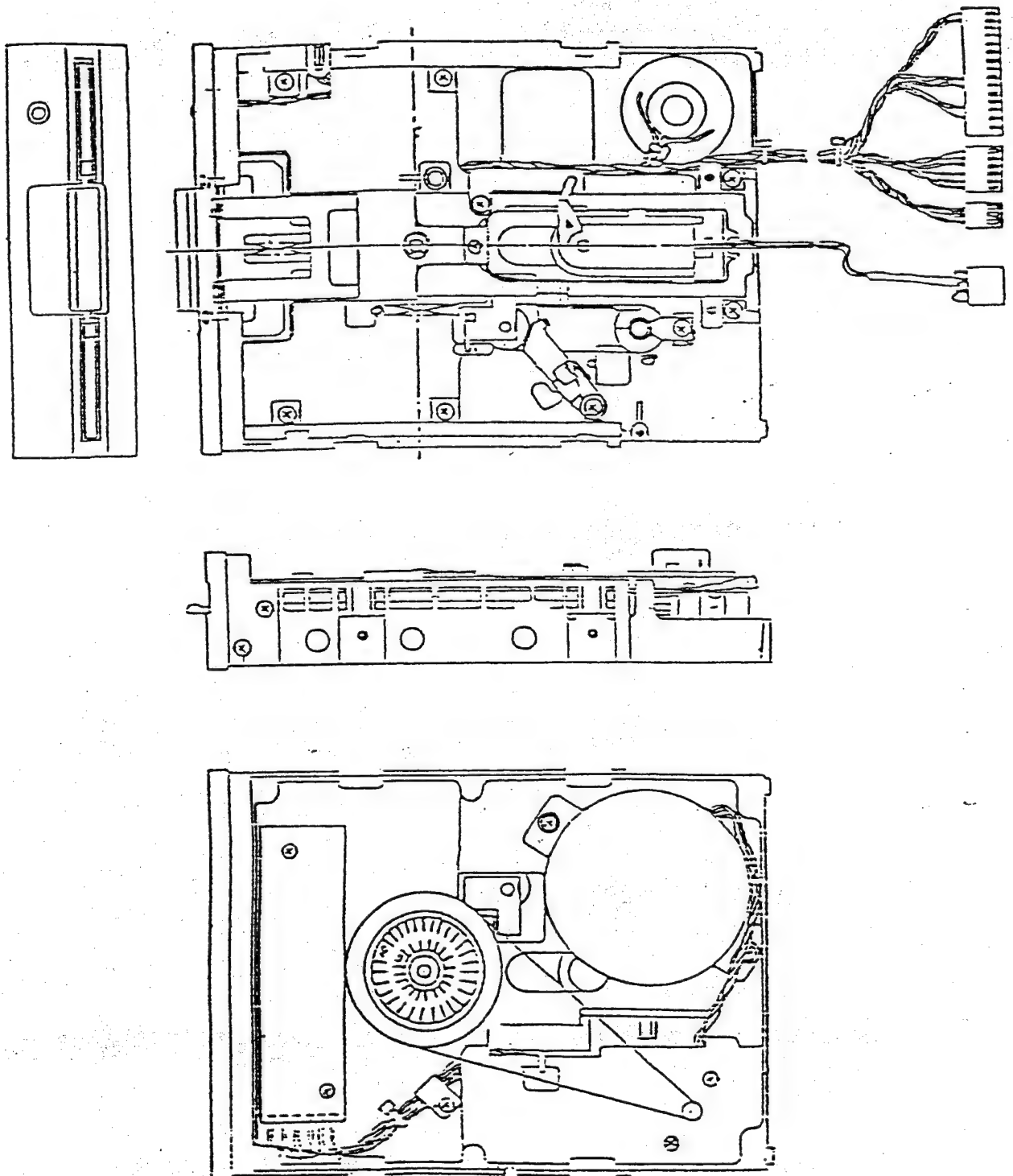
2.3.38 FIG 10

Part	Description
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12	drive belt
----	------------



2.3.39 FIG 11; Completed Drive Mechanism



Chapter Three

3.1 Description

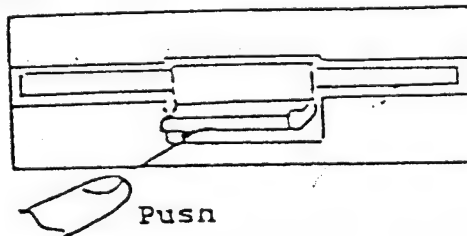
Since the disk drive is placed under direct control of the interface and power supply, no special procedure is required for starting and operation.

3.2 Operating procedure

Make sure that the power supply and I/O connector are connected, then insert the disk in accordance with the following procedure.

3.2.1 Inserting the media

- a) Apply DC voltage to the drive.
- b) Open the front door.



- c) With the index hole and write protect notch being placed on the left side of the jacket, push the media in, when the media is fully inserted the locking action can be felt.
- d) Push the door downward and close the door so that it is locked firmly

3.2.2 Extracting the media

- a) Open the front door. The media will pop out automatically to a position where you can extract it easily.
- b) For protection of the recorded data, the media should always be stored in its envelope.
- c) Close the door of the drive.

3.3 Media handling procedure

Since the media has been subjected to a write operation it naturally contains information, adequate attention must be paid to its handling.

In order to extend the life of the media and eliminate the causes of errors, it is best to take the following steps:

- a) When writing something on the jacket label of the media, do not use a ball point pen or pencil, use felt-tipped pens.
- b) Do not hold the edges of the media with paper clips or the like.
- c) Do not touch the media exposed in the slot of the jacket.
- d) Do not attempt to clean the media.
- e) Do not keep the media in the areas where there is a strong magnetic field.
- f) The diskette should be kept in its jacket.
- g) Special care should be exercised so that the media is kept free from liquid, dust, metal particles, etc.
- h) Take care not to exceed the following environmental conditions:

Temperature	10 to 47°C
Relative humidity	20 to 80 %

3.4 Seek error

Few seek errors will be experienced due to the low stepping rate, less than 12 msec/track. In case of a seek error, however, recalibration of track position can be performed. This can be done by repeatedly stepping the head towards track 0 until track 0 status is detected.

3.5 Write error

In order to check the quality of the data, perform a read-after-write operation. When data can not be read, rewrite that track and sector once again.

When data can not be read after four such operations track is defective.

3.6 Read error

What happens quite often when performing a read operation is a soft error. A soft error is defined to be a read error which is recoverable by making ten or less read operations. However, in the event no recovery is made in ten operations, move one step from the track in the same direction as the previous step, then return one step. If this fails to read the data, this error is unrecoverable.

3.7 Description

Periodic maintenance is indispensable so that this type of peripheral equipment operates properly. It is particularly important to periodically clean the head and check the load pad. Repairs and adjustments should be made in accordance with the procedures below.

3.8 Head Cleaning

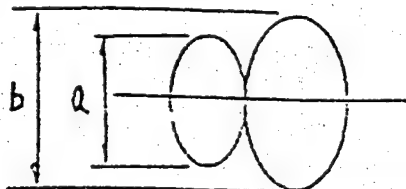
Check for excessive dust or magnetic oxide on the load pad. With the door open (do not move upper arm greater than what is provided by opening the front door) clean head with lint free cotton cloth or 'Q-tip' in 91% isopropyl alcohol. Wipe the head carefully to remove any dust and/or oxide.

3.9 Adjustment Procedure

In case of a malfunction or parts replacement, make the following adjustments. In order to maintain the interchangeability of the media between drives it is desirable to check each drive against a master alignment diskette.

3.9.1 Track adjustment (radial track)

- a) Connect I/O cable and restore the head to track 00.
- b) Insert a 48tpi alignment diskette and close the door.
- c) Connect two oscilloscope probes to pin 1 and pin 14 of UH6 (592), set oscilloscope to analog mode at 50mV/cm and 200 msec/div.
- d) Load the head and allow it to seek to track 16, check for cats eye wave form. When the cats eye lobe ratio is 70% or less, loosen the stepping motor mounting screws, turn the stepping motor to obtain the lobe ratio of 90% or less.
- e) After allowing the head to track 34, return it to track 16 and recheck the cats eye. If the ratio is correct tighten the stepping motor screws.



$$\frac{a}{b} \times 100 \geq 70$$

Cats eye lobe ratio

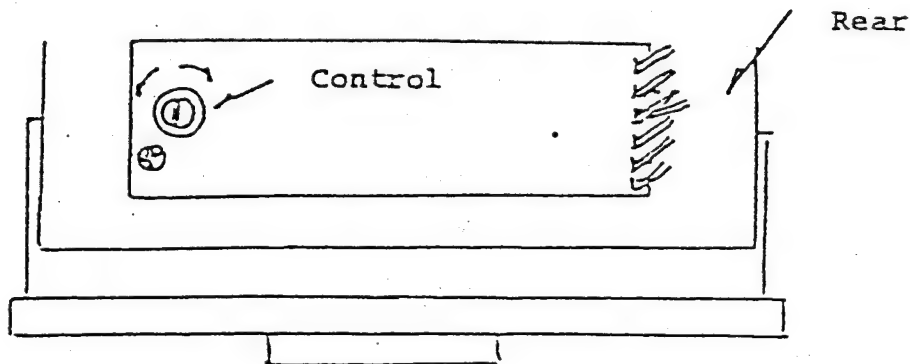
3.9.2 Track 00 adjustment

The drive is not provided with a track 00 sensor. To adjust, let the head over step in the track 00 direction and adjust the limiter position to obtain a clearance less than $0.25\text{mm} - 0.4\text{mm}$.



3.9.3 Speed control

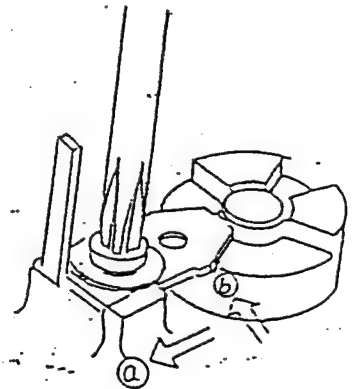
Turn the variable resistor on the motor control board until the tachometer disk on the spindle pulley appears stationary when viewed with a fluorescent lamp.



3.10 Limiter Adjustment Procedure

- (1) Set the CPU to permit ARY-03 to execute.
- (2) Connect the drive to the equipment body (1541).
- (3) Switch ON the power to the equipment and insert a medium (dummy) into the drive and close the door.
- (4) Press **[A]** and **[RET]** keys.
- (5) Loosen the limiter screw a 1/4 turn, counterclockwise, position the limiter as instructed below, then retighten the screw.
 - ① Move the limiter in **(a) →** direction until it stops.
 - ② Next, move it 0.25 to 0.4mm in **(b) ⇐** direction.

Hold the limiter using a screwdriver as a lever so that the limiter does not rotate together with the screw when it is tightened. (Be careful not to damage the steel belt with the screwdriver.) As a criterion for screw tightening, the screw should not move when a torque of 5 kg-cm is applied to it.



(6) Press [R] key and check the clearance. (Clearance____)

(7) Press [D] key and check the sound.

* Sound checking method: Shall be the same evaluation method as that when making a bump test.

(8) Check the clearance.

* A 0.25-mm clearance gage shall be inserted into the clearance and a 0.4mm clearance gage shall be not inseterted.

When OK: Press [RET] key.

When NG: Press [N] and [RET] key.

Retry beginning (4).

(9) Press [SP] key.

* Visually confirm that the pulley moves towards the 1TK OUTER side and contacts the limiter.

When OK: Press [RET] key.

When NG: Press [N] and [RET] key.

Retry beginning (4).

(10) Press **[SP]** key.

* Visually confirm that the limiter does not move towards the outer side.

When OK: Press **[RET]** key.

When NG: Press **[N]** and **[RET]** key.

Retry beginning (4).

(11) Remove the medium and switch OFF the power (1541 side only).

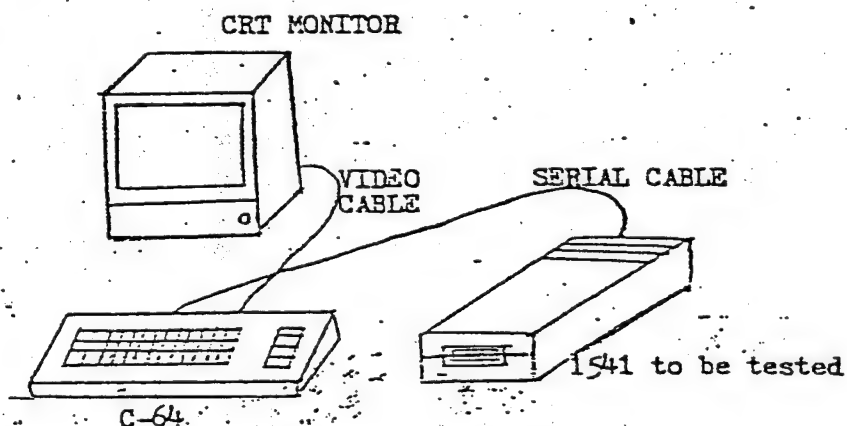
(12) Disconnect the connector.

3.11 DIAG TEST (BURN-IN) Procedure

3.11.1 Instrument for this test

Computer : C-64
CRT Monitor : 1510 or 1701 or the equivalent
Floppy Disk : 1541
PRG.Diskette : "DIAG" Diskette

3.11.2 Connection



3.11.3 Procedure

- (1) After setting the PRG diskette in to 1541 press keys as follows:

LOAD "DIAG *", 8

After the display of "READY" press key - **R U N RETURN**

After the following

appears on the screen, pull out the PRG diskette and store it.

Screen 1

CONNECT TEST DISK

TURN ON

PRESS F1 WHEN READY

- (2) The following appears approx. 20 seconds after **F1** key is pressed when the diskette is not set. Confirm that the red LED lamp of the test floppy disk is blinking.

Screen 2 1541 DIAG START

SEE LED

LED BLINK ?

YES=PRESS F1

NO =PRESS F3

- (3) After Confirmation of the LED lamp the following appears when **F1** key is pressed. Remove the Serial cable from the floppy disk and set the floppy disk to be tested next. The screen 1 will be displayed after **F1** key is pressed again.

Screen 3

REMOVE SERIAL CABLE

CONTINUE DIAG TEST?

YES=PRESS F1

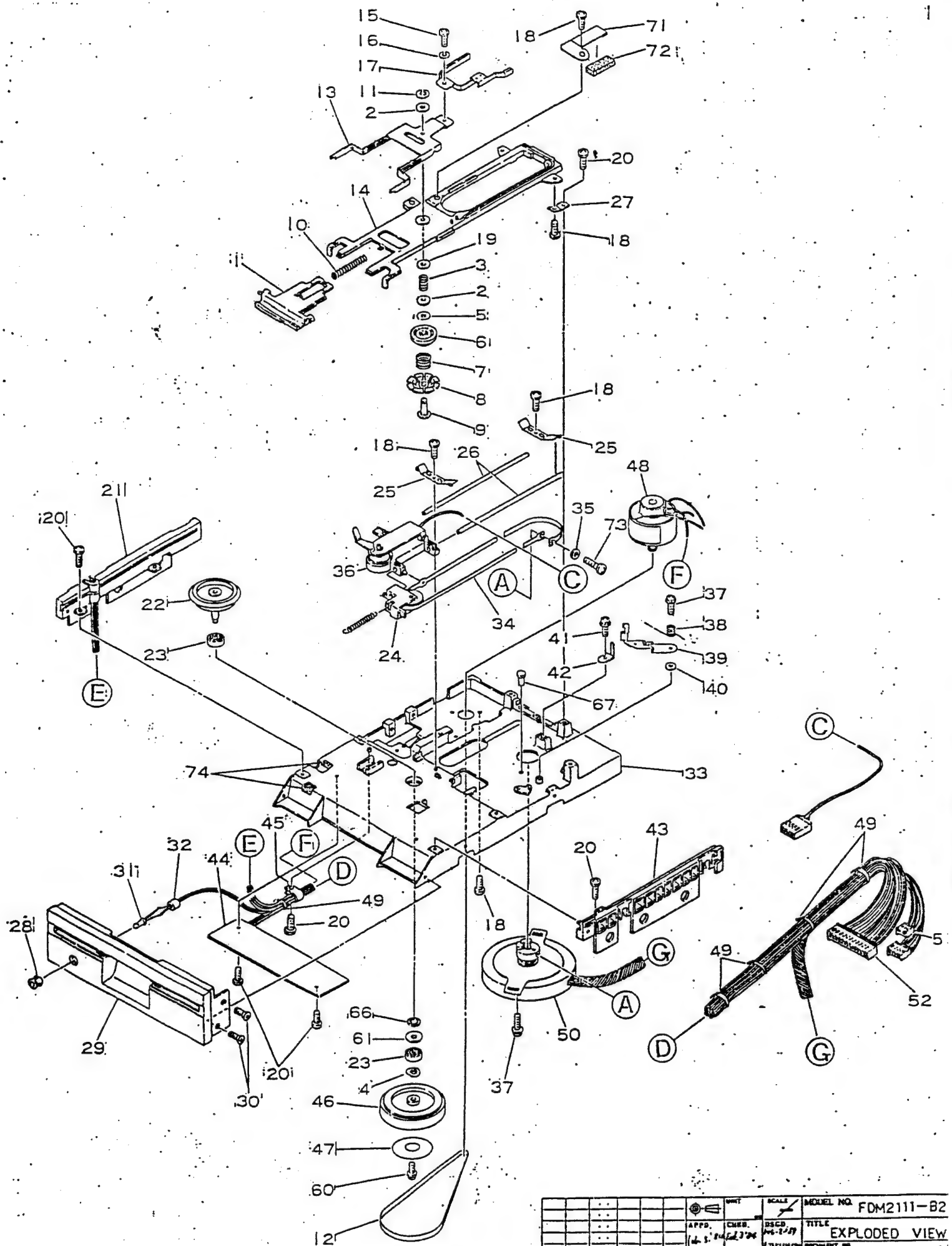
NO=PRESS F3

- (4) Under the following condition, burn-in the floppy disk whose LED lamp blinks by the above procedure. The floppy disk is qualified when the LED lamp still blinks in the same way after the burn-in.

3.11.2 PARTS LIST FOR 1541

<u>No.</u>	<u>Name</u>	<u>P/No.</u>	<u>Q'ty</u>
1	Rating Label	1540030-01	1
2	Warning Label	1010019-01	1
3	FCC ID Label	320955-02	1
4	Screw with Ext. Tooth Metric, M3	325541-05	4
5	Voltage Regulator	901528-04	1
6	Insulation Mylar	904914	2
7	Heat Sink	1540011	2
8	Heat Sink	1540011	1
9	Screw with Ext. Tooth Metric, M3	325541-02	7
10	ROM	901229-03	1
11	ROM	325302-01	1
12	RAM	325502-03	1
13	CPU	901435-01	1
14	VIA	901437-01	2
15	Logic Array	325572-01	1
16	Top Case Assy	251185	1
17	Plate Model	1540052	1
18	Shield Cover	1540013	1
19	Shield Cap	4022047	2
20	Screw with Ext. Tooth Metric, M3	325541-02	2
21	PCB Assy	1540048-01	(1)
22	Tubing Insulation	905477-02	4
23	Lock Washer, External Toothed Metric	905655-03	2
24	Nut	905960-03	4
25	Screw with Ext. Tooth Metric, M4	325542-02	2
26	Switch Seesaw	904509-01	1
27	Screw Flat Head	906803-02	2
28	Fuse Slo Blo		1
29	Fuse Holder		1
30	Power Chassis	251153	1
31	Tapping Screw	906883-03	6
32	Bottom Case	1540015	1
33	Power Transformer	1540009-	1
34	Screw Metric, M5	325548-04	4

<u>No.</u>	<u>Name</u>	<u>P/No.</u>	<u>Q'ty</u>
35	Inch Pan Head Screw	906610-03	4
36	LED Assy	1540003-02	1
37	Lamp Holder Set	903820-01	1
38	Pan Head Screw	906800-02	4
39	Foot Self Adjesive	950150-01	4
40	Drive Mechanism	325519-02	1
41	Styrofoam Top	1540019	1
42	Poly Bag	1540025	1
43	Main Assy	1540005-06	(1)
44	Poly Bag	4022044-02	2
45	Power Cord		1
46	Cable, 6P DIN	1540027-01	1
47	User Manual	1540031-02	1
48	Diskette Demo	1540024-02-ZX	1
49	Styrofoam Bottom	1540020	1
50	Inner Carton	1540032-01	1
51	Voltage Regulator	901528-03	1
52	Power Connctor		1
53	Label, FCC Class B	325553	1



				UNIT		SCALE	MODEL NO.
				APPRO. CHG.		2500	FDM2111-B2
				DATE		1-1-79	TITLE
				APPRO. CHG.			EXPLODED VIEW
				DATE			REVISION NO.
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NO.	PART NO.	NAME	NO.	PART NO.	NAME	NO.	PART NO.	NAME
1	BH117-A	Door Assy.	25	HY616	Guide Shaft Keeper	49	GR123	Band
2	HY623	Collar	26	EY142	Guide Shaft	50	QY145-A	Stapper Assy.
3	WS114	Clamp Spring	27	HY712	Hinge Spring	51	BG126	Connector Housing
4	GW115	Wave Washer	28	BG111	LED Holder	52	BG127	Connector Housing
5	GW114	Thrust Washer	29	BH127	Front Panel	53	_____	_____
6	BJ122-A	Collet Assy.	30	2A121064	Screw	54	_____	_____
7	WS142	Hub Spring	31	DE111-AA	LED Assy..	55	_____	_____
8	BJ112	Hub	32	BG211	LED Holder Ring	56	_____	_____
9	EY114	Hub Shaft	33	VY119	Housing	57	_____	_____
10	WS171	Door Spring	34	GR134	Steel Belt	58	_____	_____
11	2LD03001	E-Washer	35	GW118	Washer	59	_____	_____
12	GR111	Drive Belt	36	QY124-C	Head Assy.	60	2A271030	Screw
13	HY581	Hub Support	37	2A331050	Screw	61	2LFD0011	Washer
14	FY117	Hub Frame	38	WS157	Eject Spring	62	_____	_____
15	2A151040	Screw	39	HY532-A	Eject Assy.	63	_____	_____
16	2G102602	Washer	40	GW123	Poly Slider	64	_____	_____
17	HY582-A	Arm Support Assy.	41	2A341060	Screw	65	_____	_____
18	2A132040	Screw	42	HY551	Carriage Stopper	66	2M313001	C-Washer
19	HY625	Collar	43	BG262-A	Disk Guide-R Assy.	67	GP114	Eject Pin
20	2A131050	Screw	44	PM117AB	Motor Control P.C.B	68	_____	_____
21	BG261-AH	Disk Guide-L Assy.	45	GR152	Cord Holder	69	_____	_____
22	EY182	Spindle Unit	46	UP512	Spindle Pulley	70	_____	_____
23	GU127	Spindle Bearing	47	GT111	Tacho Disk	71	JS482	Pad Holder
24	UP533-A	Tension Pulley Assy.	48	QY112	D.C Motor	72	GS112	Pressure Pad
						73	2A151030	Screw
						74	GS117	Pad

				UNIT		SCALE		MODEL NO.	
				APPD.		CHKD.		DSCD.	
				Feb 5 '89		Feb 2 '89		TITLE	
								EXPLODED VIEW	
								DOCUMENT NO.	
								(2/2)	
ZONE				SYMB.		DATE		APPD.	
								CHKD.	
								DSCD.	
								A. TAKAHASHI	

PART NO.	DESCRIPTION	REVISIONS				
		LTR	ZONE	DESCRIPTION	DATE	APPROVED
250448-01	PCB ASSY, 1541B	1		PRELIMINARY RELEASE	8/15/84	S. Katayama
		2		REVISED	8/29/84	S. Katayama
		3		REVISED	9/15/84	S. Katayama
		4		REVISED	10/28/84	S. Katayama
		5		ADD ITEM 101 (INSULATION SPACE SHEET)	12/19/84	S. Katayama
		6		REVISED	1/11/85	T. T. Iwada
		7		REVISED PER ECO 90012	1-22-85	<i>[Signature]</i>
		8		REVISED PER ECO 90018	1-28-85	<i>[Signature]</i>
		9		REVISED PER ECO 860080	2-3-86	R. Yoshimura
		10		PILOT PRODUCTION RELEASE	3-7-86	<i>[Signature]</i>

3. THE COMBINATION OTHER THAN THE FOLLOWING IS NOT ACCEPTED :

F.D.D. BY NEWTRONICS :

P/N.O. 251643-03 OR P/N.O. 251643-01

HYBRID-IC : P/N.O. 251853-02

ROM (EP-ROM) : P/N.O. 251968-01

J3 : SHORT

2. THIS 1541B PILOT PRODUCTION RELEASE IS APPLIED UNTIL THE STOCK OF F.D.D. BY NEWTRONICS (P/N.O. 251643-03, -01) IS CLEARED.

1. SHEET 5 OF 5 SIZE B

ASSY DWG

NOTES-UNLESS OTHERWISE SPECIFIED :

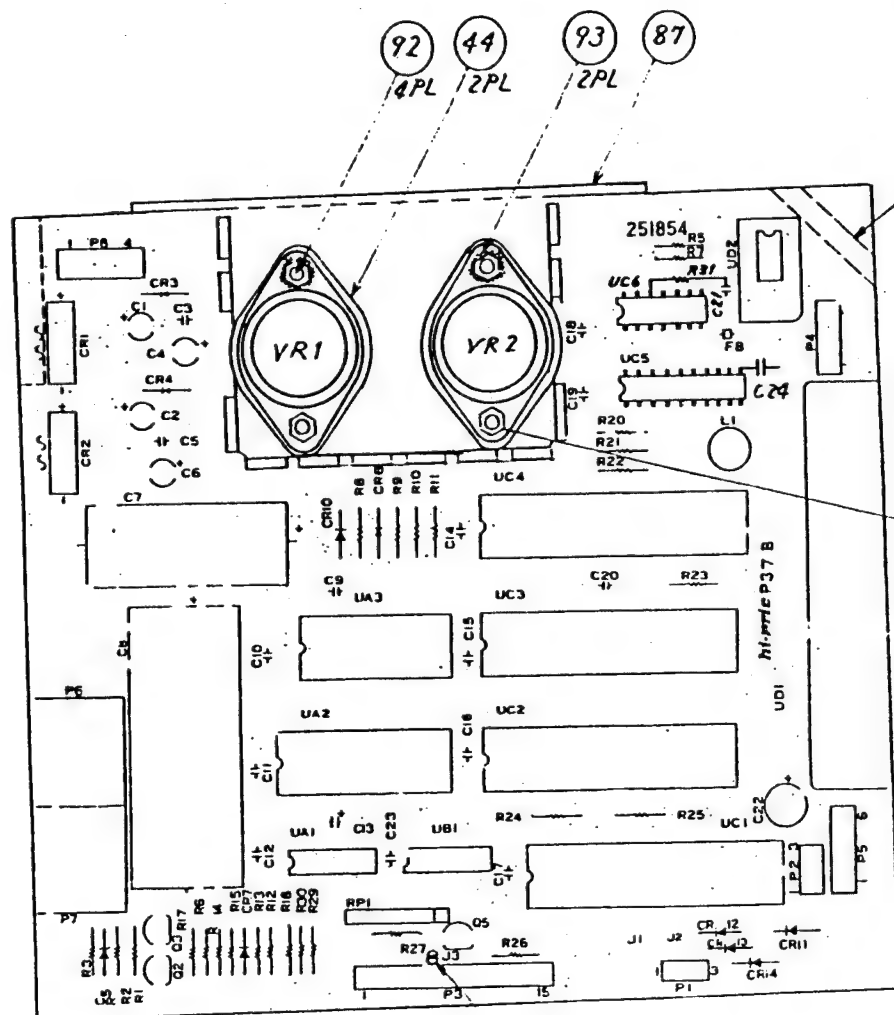
commodore	TITLE : PCB ASSY, 1541 B	DRAWN BY : N. Konomura	DATE : 8-15-84	ENGR : S. Katayama	DATE : 8-15-84	SIZE : B	DRAWING NUMBER : 250448
		CHKD : S. Katayama	DATE : 8-15-84	APPR :			SHEET 1 OF 5

QUANTITY REQD PER PART/DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES					
									01												
									1												
									2	D	251852-01	SCHEMATIC DIAGRAM, 1541B									
									3												
									4	B	251854-01	PCB, 1541B									
									5												
									6												
									7	B	901435-01	IC, MPS 6502 CPU	UC2								
									8	B	901437-01	IC, 6522 VIA	UC1, 3								
									9												
									10	B	251968-01	IC, 27128 EP ROM	UA2								
									11	B	325502-03	IC, TMM2016P S-RAM	UA3								
									12												
									13												
									14	B	251828-01	IC, GATE ARRAY 40PIN	UC4								
									15	B	251829-01	IC, GATE ARRAY 20PIN	UC5								
									16	B	251828-02	IC, GATE ARRAY 42PIN	UC4		SUBSTITUTE FOR ITEM 14.						
									17												
									18												
									19	D	251853-02	IC, HYBRID READ AMP/WRITE	UD1								
									20												
									21	B	901522-06	IC, 7406	UA1, UC6								
									22	B	901521-30	IC, 74LS14	UB1								
									23												
									24	B	901521-73	IC, 74LS06	UA1, UC6		SUBSTITUTE FOR ITEM 21.						
									25		902720-01	TRANSISTOR 2SA673	Q2								
									26		902671-01	2SC945	Q3, 5								
									27		902693-01	2SC1815	Q3, 5		SUBSTITUTE FOR ITEM 26.						
									28		902693-03	TRANSISTOR 2SC1740	Q3, 5		SUBSTITUTE FOR ITEM 26.						
									29		900756-01	DIODE RECTIFIER, FULL WAVE BRIDGE 1.5A 50V	CR1, 2		KBP-005						
									30		900750-02	RECTIFIER IN4002	CR3, 4		(11, 12, 13, 14) SEE NOTE 2						
									31		900850-01	IN4148	CR6, 7								
									32		325505-02	ZENER 3.3V 500MW	CR5								
									33		325505-03		CR5		SUBSTITUTE FOR ITEM 32.						
									34	B	900948-06	DIODE, ZENER 3.3V 500MW	CR5		SUBSTITUTE FOR ITEM 32.						
									35												
									36												
									37												
									38												
commodore										TITLE: PCB ASSY, 1541B			DRAWN BY: H. Nomamura		DATE: 8-13-84	ENGR: J. Chikuzawa	DATE: 8-15-84	SIZE: B	DRAWING NUMBER: 250448		REV: 10
										CHKD: S. Igarashi			DATE: 8-15-84		APPR:				SHEET: 2 OF 5		

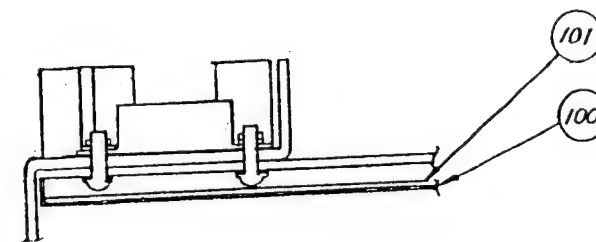
QUANTITY REQD PER PART/DASH NO.										ITEM	SD	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES				
									01											
									1	39	B	325566-01	CRYSTAL MODULE 16MHZ	UD 2		SUBSTITUTE FOR ITEM 39.				
									5	40		325566-02	CRYSTAL MODULE 16MHZ	UD 2						
									1	41		901528-04	VOLTAGE REGULATOR 12V 1.5A	VR2						
									1	42	B	901528-03	VOLTAGE REGULATOR 5V 1.2A	VR1						
										43										
									2	44	B	325551-01	INSULATION SILICONE 70-3	VR1,2						
										45										
									2	46	B	252166-01	CONNECTOR, 6PIN DIN	P6,7						
									5	47		325566-06	CRYSTAL MODULE 16MHZ	UD 2		SUBSTITUTE FOR ITEM 39.				
									5	48		-07		UD 2						
									5	49		-10		UD 2						
									5	50		325566-11	CRYSTAL MODULE 16MHZ	UD 2		SUBSTITUTE FOR ITEM 39.				
									3	51		904150-06	SOCKET, IC 40PIN	UC1,2,3						
									1	52	B	904150-05	SOCKET, IC 28PIN	UA2						
										53										
										54										
									1	55	B	251065-04	HEADER ASSY, 2.5 PITCH 4PIN	P4		AG-TYPE				
									1	56		325562-06	6PIN	P5						
									1	57		325562-15	15PIN	P3						
									2	58		325562-03	2.5 PITCH 3PIN	P1,2						
									1	59	B	903316-04	HEADER ASSY, 3.96 PITCH 4PIN	P8						
										60										
										61										
									1	62	A	251071-18	CAPACITOR, CERAMIC (R) 47pF	C24						
									1	63	B	900101-45	ELECTROLYTIC (A) 6800uF 25V	C8						
									1	64		900101-32	(A) 4700uF 16V	C7						
									4	65		900100-33	ELECTROLYTIC (R) 47uF 16V	C4,6,13,22						
									14	66		251073-04	CERAMIC (R) 0.1uF 50V	C3,5,9,10,11,12,14,15,16,17,18,19,21,23						
									1	67		251069-08	CERAMIC (R) 1000pF 50V	C20						
									2	68	B	900100-32	CAPACITOR, ELECTROLYTIC (R) 1uF 25V	C1,2						
										69										
									1	70	B	902442-22	RESISTOR PACK 1K-7	RP1		TELEMENT 8PIN				
										71										
										72										
									3	73	B	901550-52	RESISTOR, CARBON 220Ω 1/4W 5%	R1,12,26						
									3	74	B	901550-89	RESISTOR, CARBON 150Ω 1/4W 5%	R14,15,17						
									2	75	B	901550-01	RESISTOR, CARBON 1KΩ 1/4W 5%	R3,31						
									2	76	B	901550-69	RESISTOR, CARBON 1.5KΩ 1/4W 5%	R10,11						
commodore										TITLE: PCB ASSY, 1541 B			DRAWN BY: N. Hanawara		DATE: 8-15-84	ENGR: J. Kishida	DATE: 8-15-84	SIZE: B	DRAWING NUMBER: 250448	REV: 10
												CHKD: S. Kiteyama		DATE: 8-15-84	APPR:				SHEET: 3 OF 5	

QUANTITY REQD PER PART/DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES					
									01												
									3	77	B	901550-53	RESISTOR, CARBON 2K Ω 1/4W 5%	R23,24,25							
									2	78		-23	2.7K Ω	R20,21							
									2	79		-17	1.2K Ω	R5,7							
									2	80		-20	10K Ω	R13,27							
									1	81		-74	82 Ω	R2							
									2	82		-16	150K Ω	R9,22							
									3	83		-22	47K Ω	R6,8,16							
									2	84	B	901550-78	RESISTOR, CARBON 3.6K Ω 1/4W 5%	R29,30							
										85											
										86											
									1	87	B	251747-01	HEATSINK								
									1	88	B	904907-01	HEATSINK COMPOUND THERM. CONDUCTIVE								
										89											
										90											
										91											
									4	92	B	325541-05	SCREW M3x12 PAN HEAD/EXT TOOTH WASHER								
									2	93	B	905655-03	LOCK WASHER M3 EXTERNAL TOOTHED								
									4	94	B	905960-03	NUT, HEXAGON M3								
										95											
									1	96	B	325563-01	FERRITE BEAD	FBI							
										97											
									1	98	B	200018-13	JUMPER WIRE,	CR10	12.5MM						
										99											
									1	100	C	251927-01	SHIELD PLATE, BOTTOM								
									1	101	B	251973-01	INSULATION SHEET, 1551								
										102											
									2	103	B	252056-01	INSULATION TAPE, W5								
										104											
										105											
										106											
										107											
										108											
										109											
										110											
										111											
										112											
										113											
										114											
commodore										TITLE PCB ASSY, 1541 B			DRAWN BY: N. Nomura		DATE 8-15-84	ENGR J. Phillips	DATE 8-15-84	SIZE B	DRAWING NUMBER 250448		REV 10
										CHKD S. L. [Signature]			DATE 8-15-84	APPR				SHEET 4 OF 5			

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE
		SEE SHEET 1	
APPROVED			



J3 : SHORT



DETAIL

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS		X XX XXX 1/2 1/4 1/8 1/16 1/32 1/64 1/128 1/256 1/512 1/1024 1/2048 1/4096 1/8192 1/16384 1/32768 1/65536 1/131072 1/262144 1/524288 1/1048576 1/2097152 1/4194304 1/8388608 1/16777216 1/33554432 1/67108864 1/134217728 1/268435456 1/536870912 1/1073741824 1/2147483648 1/4294967296 1/8589934592 1/17179869184 1/34359738368 1/68719476736 1/137438953472 1/274877906944 1/549755813888 1/1099511627776 1/2199023255552 1/4398046511104 1/8796093022208 1/17592186044416 1/35184372088832 1/70368744177664 1/140737488355328 1/281474976710656 1/562949953421312 1/1125899906842624 1/2251799813685248 1/4503599627370496 1/9007199254740992 1/18014398509481984 1/36028797018963968 1/72057594037927936 1/144115188075855872 1/288230376151711744 1/576460752303423488 1/1152921504606846976 1/2305843009213693952 1/4611686018427387904 1/9223372036854775808 1/18446744073709551616 1/36893488147419103232 1/73786976294838206464 1/147573952589676412928 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1/98079714615416886934934209737619787751599303819750539264 1/196159429230833773869868419475239575503198607639501078528 1/392318858461667547739736838950479151006397215279002157056 1/784637716923335095479473677900958302012794430558004314112 1/1569275433846670190958947355801916604025588861116008628224 1/3138550867693340381917894711603833208051177722232017256448 1/6277101735386680763835789423207666416102355444464034512896 1/12554203470773361527671578846415332832204710888928069025792 1/25108406941546723055343157692830665664409421777856138051584 1/50216813883093446110686315385661331328818843555712276103168 1/100433627766186892221372630771322662657637687111424552206336 1/200867255532373784442745261542645325315275374222849104412672 1/401734511064747568885490523085290650630550748445698208825344 1/803469022129495137770981046170581301261101496891396417650688 1/1606938044258990275541962092341162602522202993782792835301376 1/3213876088517980551083924184682325205044405987565585670602752 1/6427752177035961102167848369364650410088811975131171341205504 1/12855504354071922204335696738729300820177623950262342682411008 1/25711008708143844408671393477458601640355247900524685364822016 1/51422017416287688817342786954917203280710495801049370729644032 1/102844034832575377634685573909834406561420991602098741459288064 1/205688069665150755269371147819668813122841983204197482918576128 1/411376139330301510538742295639337626245683966408394965837152256 1/822752278660603021077484591278675252491367932816789931674304512 1/1645504557321206042154969182557350504982735865633579863348609024 1/3291009114642412084309938365114701009965471731267159726697218048 1/6582018229284824168619876730229402019930943462534319453394436096 1/13164036458569648337239753460458804039861886925068638906788872192 1/26328072917139296674479506920917608079723773850137277813577744384 1/52656145834278593348959013841835216159447547700274555627155488768 1/105312291668557186697918027683670432318895095400549111254310975536 1/210624583337114373395836055367340864637790190801098222508621951072 1/421249166674228746791672110734681729275580381602196445017243902144 1/842498333348457493583344221469363458551160763204392890034487804288 1/1684996666896914987166688442938726917102321526408785780068975608576 1/3369993333793829974333376885877453834204643052817571560137951217152 1/6739986667587659948666753771754907668409286105635143120275902434304 1/13479973335175319897333507543509815336818572211270286240551804868608 1/26959946670350639794667015087019630673637144422540572481103609737216 1/53919893340701279589334030174039261347274288845081144962207219474432 1/107839786681402559178668060348078522694548577690162289924414438948864 1/215679573362805118357336120696157045389097155380324579848828877897728 1/431359146725610236714672241392314090778194310760649159697657755795456 1/862718293451220473429344482784628181556388621521298319395315511590912 1/1725436586902440946858688965569256363112777243042596638790631023181824 1/3450873173804881893717377931138512726225554486085193277581262046363648 1/6901746347609763787434755862277025452451108972170386555162524092727296 1/13803492695219527574869511724554050904902217944340773110325048185454592 1/27606985390439055149739023449108101809804435888681546220650096370909184 1/55213970780878110299478046898216203619608871777363092441300192741818368 1/110427941561756220598956093796432407239217743554726184882600385483636736 1/220855883123512441197912187592864814478435487109452369765200770967273472 1/441711766247024882395824375185729628956870974218904739530401541934546944 1/883423532494049764791648750371459257913741948437809479060803083869093888 1/1766847064988099529583297500742918515827483896875618958121606167738187776 1/3533694129976199059166595001485837031654967793751237916243212335476375552 1/7067388259952398118333190002971674063309935587502475832486424670952751104 1/14134776519904796236666380005943348126619871175004951664972849341905502208 1/28269553039809592473332760011886696253239742350009903329945698683811004416 1/56539106079619184946665520023773392506479484700019806659891397367622008832 1/113078212159238369893331040047546785012958969400039613319782794735244017664 1/226156424318476739786662080095093570025917938800079226639565589470488035328 1/452312848636953479573324160190187140051835877600158453279131178940976070656 1/904625697273906959146648320380374280103671755200316906558262357881952141312 1/1809251394547813918293296640760748560207343510400633813116524715763904282624 1/3618502789095627836586593281521497120414687020801267626233049431527808565248 1/7237005578191255673173186563042994240829374041602535252466098863055617130496 1/14474011156382511346346373126085988481658748083205070504932197726111234260992 1/28948022312765022692692746252171976963317496166410141009864395452222468521984 1/57896044625530045385385492504343953926634992332820282019728790904444937043968 1/11579208925106
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PART NO.	DESCRIPTION	REV	DATE	DESCRIPTION	REV	DATE
1540002-01	POWER SUPPLY ASSY VIC-1540 UL	A	7/26/81	PRODUCTION RELEASE		
		B		CHANGED FILTER POWER CONNECTOR FOR CSA (ITEM 24 WAS ITEM 23)	7.7	17
		C	8/24/82	CHANGED FILTER POWER CONNECTOR FOR FCC (ITEM 25 WAS ITEM 23)	7.7	17
		D	8/22/82	CHANGED ACCESSORY OF TRANSFORMER	7.7	17
		E	8/13/82	CHANGED SCREW TO M3-6 FROM M3-8.	7.7	17
		F	12/7/82	ADDED DASH 06 THRU 10 AND ITEM 21. ADDED ITEM 8, 9 AND 63. ADDED SHEET 5 OF 5.	7.7	18
1540002-05	VIC-1540 PSI	G	2/8/83	REVISED PER ECO 830060		80
	1541 UL	H	3/5/83	REVISED PER ECO 830101		80
		J	1/1/83	REVISED PER ECO 830196		80
		K	4/27/83	REVISED PER ECO 830298		80
		L	7/13/83	REVISED PER ECO 830329		80
1540002-10	POWER SUPPLY ASSY 1541 BSI	M	10-25-83	REVISED PER ECO 830429		80

4. NO CHANGE QTY FOR ITEM 54 IF USED ITEM 6 OR 7.

3. USE ONLY WHEN USED ITEM 8 OR 9.

2. IF ITEM 8 OR 9 ARE USED THEN QTY FOR ITEM 54 WILL CHANGE FROM 7 TO 9 PCS AND USED WITH ITEM 63.

1. SHEET 4 & 5 OF 5 ARE B-SIZE ASSY DWG.

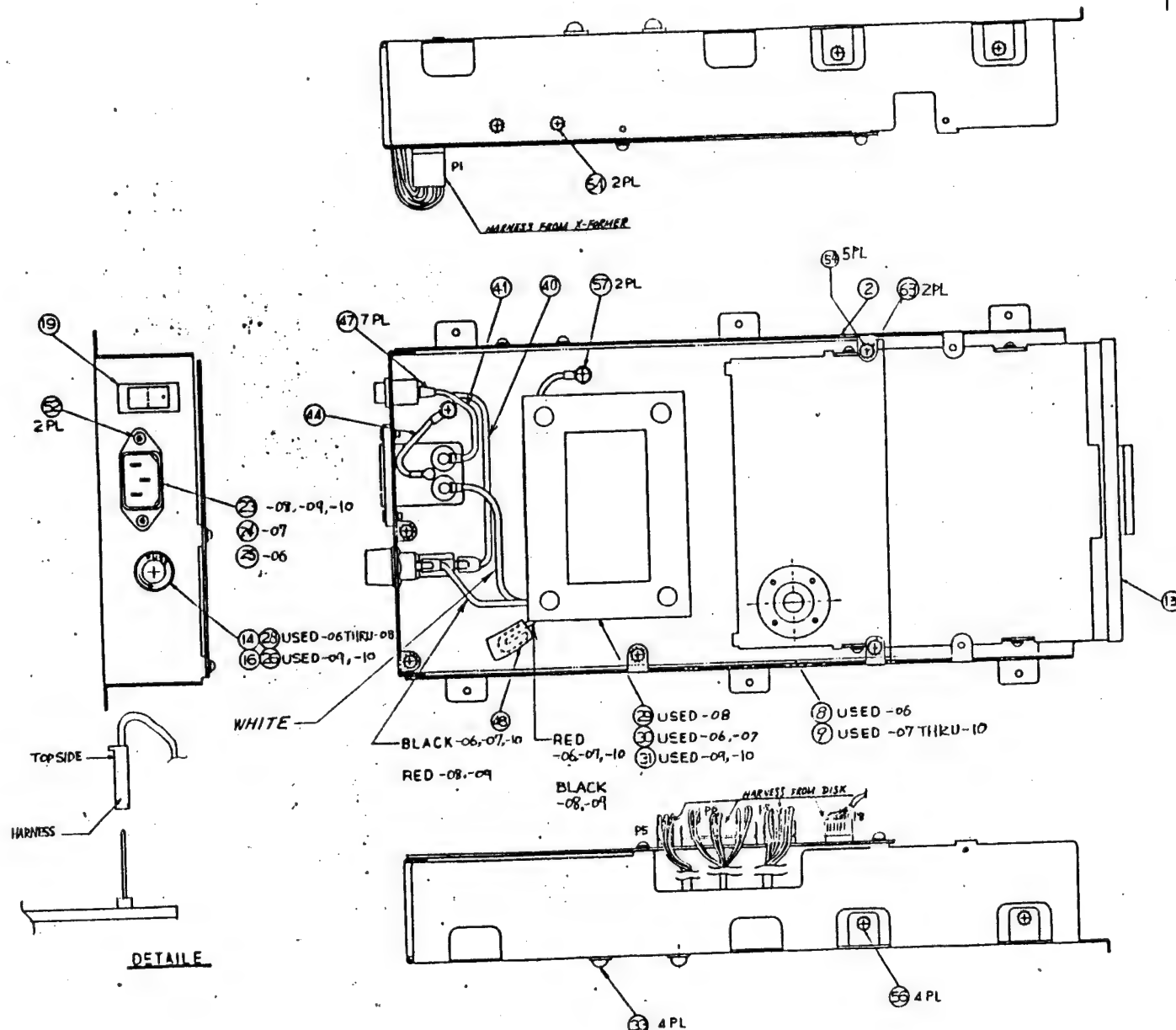
NOTES.

commodore	TITLE: POWER SUPPLY ASSY VIC-1540	DRAWN BY: Y. IMAGAWA	DATE: 7/1/81	DATE: 1/1	SIZE: B	1540002-	SHEET 1 OF 5
		CHKD: <i>[Signature]</i>	DATE: 6/20/81	DATE: 1/1			

QUANTITY REQD PER PART/DASH NO.										ITEM	QTY	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES	
10	09	08	07	06	05	04	03	02	01								
S	S	S	S	S	I	I	I	I	I	1	D	1540012	POWER CHASSIS			SUBSTITUTE FOR ITEM 2, SEE NOTE 2	
I	I	I	I	I						2	D	251153	POWER CHASSIS			SEE NOTE 3	
										3							
										4	B/D	1540001 -01	PCB ASSY (FCC) UL				
										5	B/D	1540001 -02	PCB ASSY				
				S			I	I	I	6	B/D	1540001 -03	PCB ASSY (FCC) UL			SUBSTITUTE FOR ITEM 8	
S	S	S	S							7	B/D	1540001 -04	PCB ASSY			SUBSTITUTE FOR ITEM 9	
					I					8	B	1540048 -01	PCB ASSY (FCC) UL			USED LOGIC ARRAY	
I	I	I	I							9	B	1540048 -02	PCB ASSY			USED LOGIC ARRAY	
										10							
										11							
S	S	S	S	S	S	S	S	S	S	12	B	325519 -01	FLOPPY DISK (BLACK)			SUBSTITUTE FOR ITEM 13	
I	I	I	I	I	I	I	I	I	I	13	B	325519 -02	FLOPPY DISK (BROWN)				
				I	I	I				14	B	903614 -01	FUSE HOLDER FH 032				
										15							
I	I					I				16	B	903615 -01	FUSE HOLDER FH 033				
										17							
										18							
I	I	I	I	I	I	I	I	I	I	19	B	904509 -01	SWITCH, ROCKER	SW 1			
										20							
S	S	S		S	S	S	S		S	21	B	325552 -01	FILTER POWER CONNECTOR			SUBSTITUTE FOR ITEM 23 (TOKIN)	
S	S	S			S	S	S			22	B	903467 -01	FILTER POWER CONNECTOR			SUBSTITUTE FOR ITEM 23	
I	I	I			I	I	I			23	B	903467 -02	FILTER POWER CONNECTOR				
			S	I				S	I	24	B	903350 -01	POWER CONNECTOR			SUBSTITUTE FOR ITEM 23 (HAWAI PA-126)	
S	S	S		I	S	S	S		I	25	B	903467 -03	FILTER POWER CONNECTOR				
I	I				I	I				26	B	903559 -02	FUSE, SLO BLO 250V 0.5A			5.2" x 20mm	
			S				S			27	B	903555 -20	FUSE, SLO BLO 250V 1.0A			6.3" x 30mm, SUBSTITUTE FOR ITEM 28	
			I	I			I	I	I	28	B	903556 -16	FUSE, NORMAL BLO 250V 1.0A			6.3" x 30mm	
										29	C	1540009 -01	POWER TRANSFORMER JAS	T 1			
			S	I			S	I	S	30	C	1540009 -02	POWER TRANSFORMER UL CSA JAS	T 1		SUBSTITUTE FOR ITEM 29	
I	I				I	I				31	C	1540009 -03	POWER TRANSFORMER VDE 240/220V	T 1			
										32							
4	4	4	4	4	4	4	4	4	4	33	B	325548 -04	SCREW PAN HEAD WITH SPRING WASHER M5-10			TO BE ATTACHED WITH X-FORMER	
										34							
										35							
										36							
commodore										TITLE:		DRAWN BY:		DATE:		SHEET	
										POWER SUPPLY ASSY VIC-1540		Y. IMAGAWA		7/1/81		2 OF 5	
										CHKD: 6.7/81		8/2/81		APPR:			
														DATE:		SIZE:	
														11		B 15400002-	
														11			

QUANTITY REQD PER PART/DASH NO.										ITEM	D.S.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES						
	10	09	08	07	06	05	04	03	02	01												
											37											
											38											
											39											
	1	1	1	1	1	1	1	1	1	1	40	B	200017 -03	LEAD WIRE (BLACK)		1015 AWG-18 L150MM						
	1	1	1	1	1	1	1	1	1	1	41	B	200017 -11	LEAD WIRE (BLACK)		1015 AWG-18 L100MM						
											42											
											43											
	1	1	1	1	1	1	1	1	1	1	44	B	1540010	GROUND CABLE ASSY								
											45											
											46											
	7	7	7	7	7	7	7	7	7	7	47	B	905476 -02	TUBING SHRINCABLE		φ5x20						
	1	1	1	1	1	1	1	1	1	1	48	B	905476 -04	TUBING SHRINCABLE		φ4x40						
											49											
											50											
											51											
	2	2	2	2	2	2	2	2	2	2	52	B	906803-02	SCREW FLAT HEAD M3x8		FILTER CONNECTOR (2)						
											53											
	7	7	7	7	7	7	7	7	7	7	54	B	325541-02	SCREW PAN HEAD M3x6 w/EXT	TOOTH WASHER	PCB (5), SEE NOTE 2						
											55											
	4	4	4	4	4	4	4	4	4	4	56	B	906610-03	SCREW PAN HEAD NO.6-32UNC L110MM		FLOPPY DISK (4)						
	2	2	2	2	2	2	2	2	2	2	57	B	325542-02	SCREW PAN HEAD M4x6 w/EXT	TOOTH WASHER	GROUND (2)						
											58											
											59											
											60											
											61											
											62											
	2	2	2	2	2						63	B	1540051	METAL, L-ANGLE		SEE NOTE 2						
											64											
											65											
											66											
											67											
											68											
											69											
											70											
											71											
											72											
commodore												TITLE:		DRAWN BY:		DATE:		DATE:		SIZE	SHEET	
POWER SUPPLY ASSY VIC-1540												Y. JIMAGAWA		1/1/81		1/1/81		B	15400002-		3 OF 5	
												CHKD: E. J. J.		1/1/81		APPR:						

REVISIONS				DATE	APPROVED
LTR	ZONE	DESCRIPTION			
		SEE SHEET 1			



2. ALL LEADS WILL HAVE A MINIMUM OF ONE WRAP AROUND TERMINALS PRIOR TO SOLDERING.

1. ALL OF HARNESS EXCEPT P1 SHOULD BE CONNECTED TO EACH HEADER ASSY (SEE DETAIL).

commodore	
POWER SUPPLY ASSY	
REV B	1540002 M
SCALE	SHEET 1 OF 1

PART NO.	DESCRIPTION
15400001 -01	PCB ASSY VIC-1540 (FCC) UL
15400001 -02	PCB ASSY VIC-1540
15400001 -03	PCB ASSY VIC-1541 (FCC) UL
15400001 -04	PCB ASSY VIC-1541

REV	DATE	DESCRIPTION	BY	APP
A	8/21/81	PRODUCTION RELEASE	T.T.	0.7
B	1/2/82	ADDED SHEET 6 OF 7 (FOR FCC)	T.T.	6.7
C	8/13/82	ADDED DASH -03 AND -04	T.T.	6.7
D	11/20/82	ADDED ITEM 6.	T.T.	7.14
E	3/2/83	REVISED PER ECO 830084	T.T.	7.19
F	11/29/83	REVISED PER ECO 830479	T.T.	8.20

☒ THIS ROM CAN BE USED ON ONLY USA - CANADA
AND JAPAN'S VERSION FOR SUBSTITUTE FOR ITEM 35.

1. SHEET 6 OF 8 B-SIZE

ASSY DWG.

NOTES.

commodore	TITLE:	PCB ASSY VIC-1540	DRAWN BY:	Y. MIYAGAWA	DATE:	1/21/81	DATE:	1/1	SIZE:	B	15400001-	SHEET	1 of 8
	CHKD:	6-1	DATE:	8/23/81	APPR:		DATE:	1/1					

PART NO.	DESCRIPTION	REV	DATE	DESCRIPTION	REV	DATE
1540001 -01	PCB ASSY VIC-1540 (FCC) UL	A	8/24/81	PRODUCTION RELEASE	7.7	0.7
1540001 -02	PCB ASSY VIC-1540	B	8/24/81	ADDED SHEET 6 OF 7 (FOR FCC)	7.7	0.7
1540001 -03	PCB ASSY VIC-1541 (FCC) UL	C	8/13/82	ADDED DASH -03 AND -04	7.7	0.7
1540001 -04	PCB ASSY VIC-1541	D	11/20/82	ADDED ITEM 6.	7.7	7.14
		E	3/2/83	REVISED PER ECO 830084	7.7	7.0
		F	11/29/83	REVISED PER ECO 830479		7.0

☒ THIS ROM CAN BE USED ON ONLY USA · CANADA
 AND JAPAN'S VERSION FOR SUBSTITUTE FOR ITEM 35.

1. SHEET 6 OF 8 B-SIZE
 ASSY DWG.

NOTES.

commodore	TITLE: PCB ASSY VIC-1540	DRAWN BY: Y. HIRAGAWA	DATE: 8/24/81	DATE: 11/1/81	SIZE: B	1540001-	SHEET: 1 of 8
		CHKD: 0-1	8/24/81	APPR:			

QUANTITY REQD PER PART/DASH NO.										ITEM	D. S.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES					
									01 03 02 01												
									1 1 1 1	1	C	1540001	P.C. BOARD 315x155x1.6L			MTL: GLASS EPOXY 9-10					
										2											
										3											
									PE PE	4	C	1540008-01	SCHEMATIC DIAGRAM								
									PF PF	5	C	1540008-02	SCHEMATIC DIAGRAM								
									1 1	6	B	901229-03	IC 2364-197 ROM	UAB5		\$E000 ~ \$FFF					
									1 1 1 1	7	B	901435-01	IC MPS 6502 CPU	UCD5							
									1 1 1 1	8	B	325302-01	2364-130 ROM	UAB4		\$C000 ~ \$DFFF					
									1 1 1 1	9	B	325303-01	2364-131 ROM	UAB5		\$E000 ~ \$FFFF					
									2 2 2 2	10		901437-01	MPS 6522 VIA	UAB1,UCD4							
									4 4 4 4	11		901471-01	MPS 2114 RAM	UA2,3,UB2,3							
									2 2 2 2	12		901521-01	74LS00 2-NAND	UB7,UF5							
									1 1 1 1	13		901521-21	74LS02 2-NOR	UE5							
									1 1 1 1	14		901521-02	74LS04 INV.	UB6							
									1 1 1 1	15		901521-24	74LS10 3-NAND	UF3							
									1 1 1 1	16		901521-30	74LS14 SCH. INV.	UC1							
									1 1 1 1	17		901521-17	74LS42 DEC.	UB8							
									2 2 2 2	18		901521-06	74LS74 D-FF	UE4,UF6							
									1 1 1 1	19		901521-32	74LS86 2-Ex-OR	UG2							
									1 1 1 1	20		901521-15	74LS133 13-NAND	UC2							
									1 1 1 1	21		901521-18	74LS139 Dem. P	UE2							
									1 1 1 1	22		901521-28	74LS164 8 Bit Shift Reg	UD2							
									1 1 1 1	23		901521-12	74LS165 8 Bit Shift Reg	UD3							
									1 1 1 1	24		901521-40	74LS191 4 Bit Count.	UE3							
									2 2 2 2	25		901521-26	74LS193 4 Bit Count.	UE7,UF4							
									1 1 1 1	26		901521-45	74LS245 Bus Transceiver	UC3							
									1 1 1 1	27		901522-32	7402	UC7							
									2 2 2 2	28		901522-06	7406 INV. OC.	UD1,UF2							
									1 1 1 1	29		901522-03	74177	UC6							
									1 1 1 1	30		901510-01	9602	UG3							
									1 1 1 1	31		901523-04	LM311	UH4							
									2 2 2 2	32	B	901523-08	NE592	UHS,UH7							
									1 1 1 1	33	B	901522-01	7417	UG4							
									S S S S	34	B	901521-54	74LS197	UC6		SUBSTITUTION FOR ITEM 29					
									S S	35	B	901229-02	2364-186 ROM	UAB5		\$E000 ~ \$FFFF SUB. FOR ITEM 6.					
									S S	36	B	901229-01	IC 2364-173 ROM	UAB5		\$E000 ~ \$FFFF SUB. FOR ITEM 6. [2]					
commodore										TITLE: PCB ASSY VIC-1540		DRAWN BY: DATE: 1/1		CHKD: B. Tohave 8/26/81		APPR:		DATE: 1/1	SIZE: B	1540001-	SHEET: 2 of 8

QUANTITY REQD PER PART/DASH NO.										ITEM	QTY	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES
01	02	03	04	05	06	07	08	09	10							
										37	B	902671	TRANSISTOR NPN 2SC945	Q2, Q3		SUBSTITUTION FOR ITEM 37
										38		902693-01	NPN 2SC1815	Q2, Q3		
										39		902679	NPN 2SD467	Q4-Q7		SUBSTITUTION FOR ITEM 39
										40		902682	NPN 2SC2120	Q4-Q7		
										41		902720	PNP 2SA673	Q1		SUBSTITUTION FOR ITEM 42 SUBSTITUTION FOR ITEM 33
										42		902717	PNP 2SA733	Q8-Q11		
										43	B	902744-01	TRANSISTOR PNP 2SA1015	Q8-Q11		
										44	B	901522-30	IC 7407	UG4		
										45						
										46	B	900750-02	DIODE, SIGNAL 1N4002	CR2, 4, 13-16		SUBSTITUTION FOR ITEM 47 HZ3C-2 HZ4A-1 SUB. FOR ITEM 49 1N5226B SUB. FOR ITEM 49 HZ5C-2 1N5231 SUB. FOR ITEM 52 KBP-005 KBL-02
										47		900850-05	SIGNAL WG713C	CR6-11, 17, 18		
										48		900850-01	SIGNAL 1N4148	CR6-11, 17, 18		
										49		325505-01	ZENER 3.3V 500mW ±5%	CR5		
										50		325505-02	3.3V 500mW ±5%	CR5		
										51		900948-06	3.3V 500mW ±5%	CR5		
										52		325506-01	5.1V 500mW ±5%	CR12		
										53		900948-11	ZENER 5.1V 500mW ±5%	CR12		
										54		900756-01	BRIDGE 1.5A 50V	CR1		
										55	B	900755-02	DIODE, BRIDGE 4A 50V	CR3		
										56						
										57	B	900556-02	CRYSTAL 16MHz	Y1		
										58						
										59	B	325513-01	COIL, INDUCTOR 2.2μH	L1		
										60	B	325513-02	COIL, INDUCTOR 22μH	L8, L11		
										61	B	325513-03	COIL, INDUCTOR 100μH	L7, L9, L10		
										62						
										63	B	901528-04	VOLTAGE REGULATOR 12V 1.5A	VR1		LM340-12
										64	B	901528-01	VOLTAGE REGULATOR 5V 3A	VR2		LM323
										65	B	904914	INSULATION MYLAR TO-3			ATTACHED WITH VOLT REGULATOR
										66	B	325551-01	INSULATION SILICONE TO-3			SUBSTITUTION FOR ITEM 65.
										67						
										68	B	903361	CONNECTOR, DIN 6PIN	P3, P4		HOSHIDENKI TCS4460-01-101
										69						
										70	B	904150-06	SOCKET IC LOW PRO. 40PIN			
										71	B	904153-03	SOCKET IC LOW PRO. 24PIN			
										72						

commodore

TITLE: PCB ASSY VIC-1540

DRAWN BY: J.L.A.C.

CHKD: J.L.A.C.

DATE: 8/1/81

APPR:

DATE: 11

SIZE: B

1540001-</

[illegible]

QUANTITY REQD PER PART/DASH NO.										ITEM	D.S.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES
									04-03-02-01							
									1	109	B	901550-69	RESISTOR, CARBON 1/4W 5% 1.5K Ω	R48		
									4	110	B	901550-12	22K Ω	R7,10,29,53		
									1	111	B	901550-07	100K Ω	R46		
									1	112	B	901550-03	RESISTOR, CARBON 1/4W 5% 5.1K Ω	R26		
									1	113	B	901751-43	RESISTOR, METAL OXIDE 1/4W 1% 91 Ω	R8		
									1	114	B	901751-18	RESISTOR, METAL OXIDE 1/4W 1% 100 Ω	R49		
									1	115	B	901751-44	RESISTOR, METAL OXIDE 1/4W 1% 150 Ω	R54		
									2	116	B	901751-45	RESISTOR, METAL OXIDE 1/4W 1% 9.1 K Ω	R12, R13		
									1	117	B	901550-04	RESISTOR, CARBON 1/4W 5% 6.8K Ω	R43		
										118						
										119						
										120						
									10	121	B	903025-01	FERRITE BEAD	L2-L6, L12-L16		
										122						
										123						
									2	124	B	4022048	SHIELD BOX			
									2	125	B	4022047	SHIELD CAP			
									2	126	B	1540023	HEAT SINK TO-3			
									1	127	B	1540011	HEAT SINK REGULATOR			
									1/8	128		904907-01	COMPOUND THER FOR HEAT SINK			CONJUNCTION WITH ITEM 65
										129						
										130						
										131						
									4	132	B	906800-02	SCREW PAN HEAD M3x10			
									4	134	B	905655-03	EXTERNAL TOOTH WASHER M3			
									4	135	B	905960-03	NUT HEX. M3			
										136						
									4	137	B	905477-02	TUBE VINYL ϕ 3.5 x L 5mm			
										138						
									1	139	B	251584-04	WRAPPING WIRE AWG 28 L=40mm			
									1	140	B	-05	L=47mm			
									1	141	B	-06	L=50mm			
									2	142	B	251584-07	WRAPPING WIRE AWG 28 L=60mm			
										143						
										144						
										145						

commodore

TITLE: PCB ASSY VIC-1540

DRAWN BY: **DATE:** 11

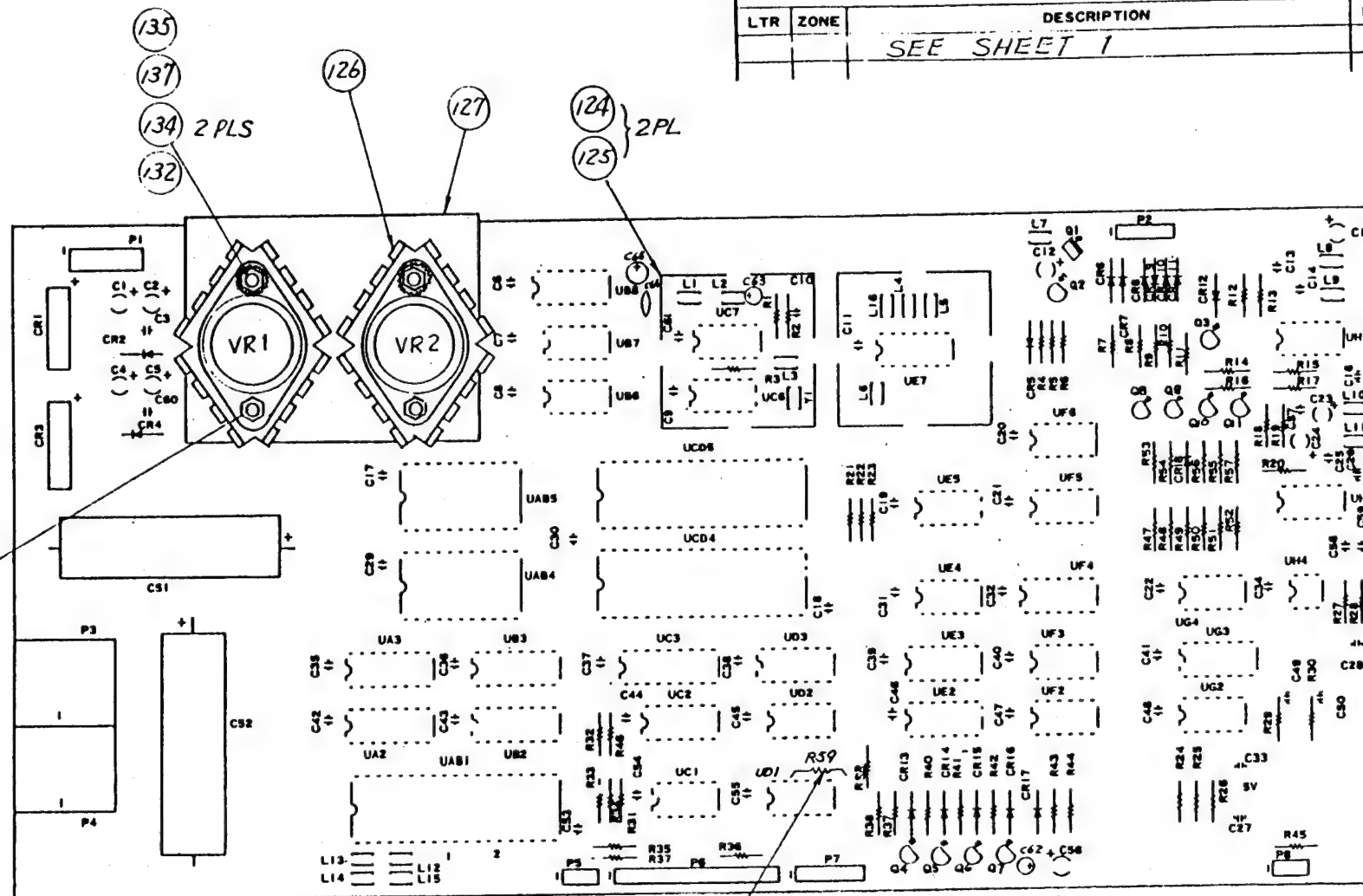
CHKD: G. Takano 8/2/79 **APPR:**

DATE: 11 **SIZE:** B

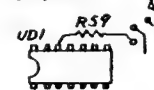
1540001-

SHEET 5 OF 8

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE
		SEE SHEET 1	
			APPROVED



DETAIL



-01, -03 SHOWN

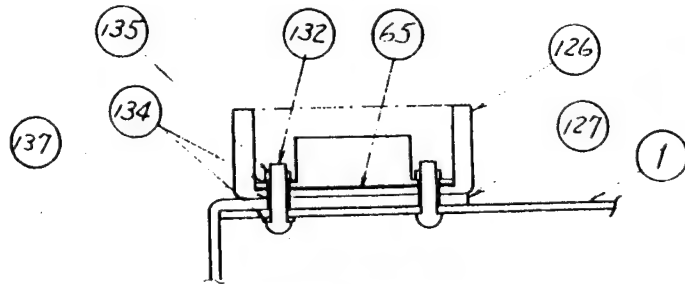
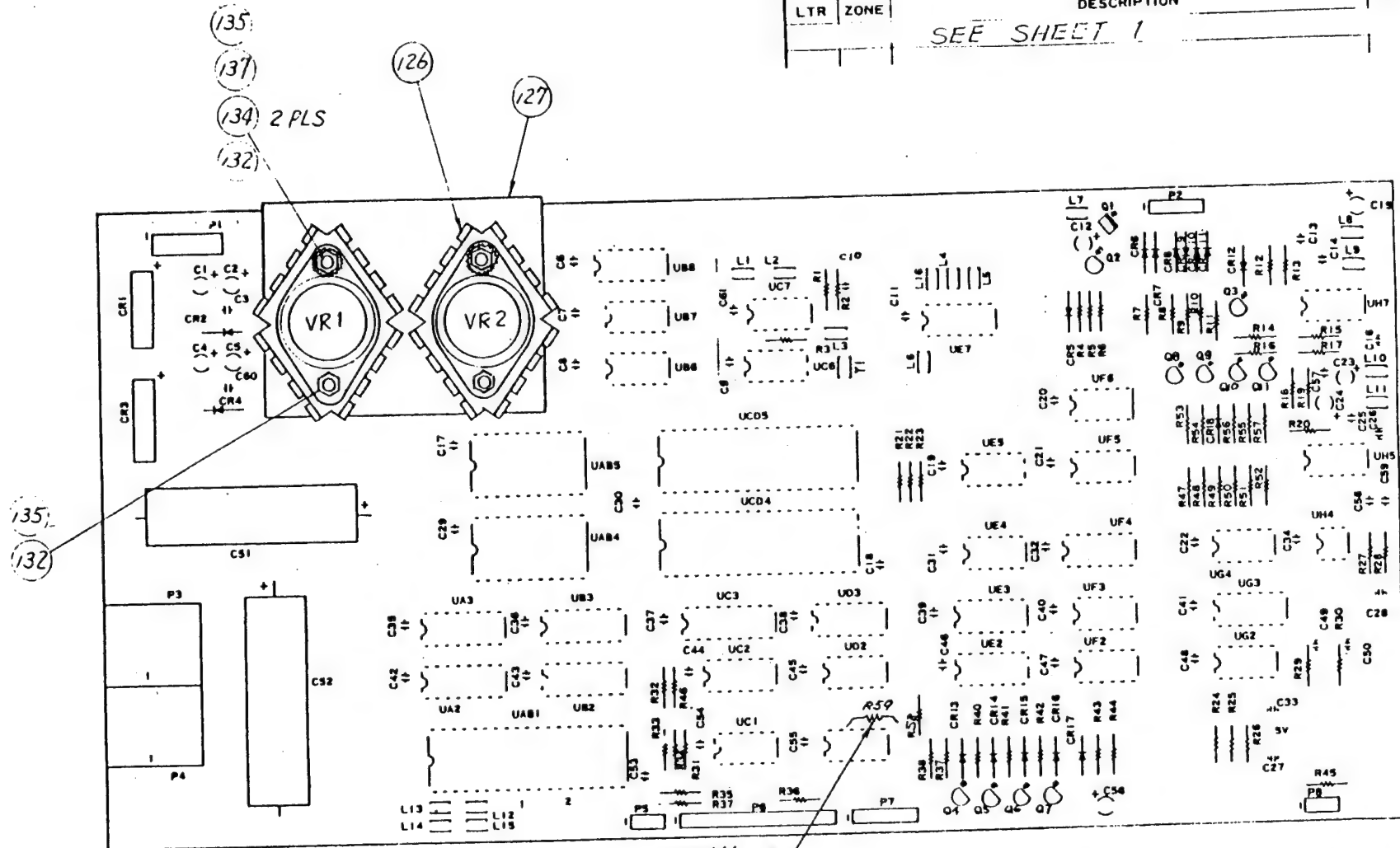
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS		DRAWN BY: T. Takuda		DATE: 8/24/81	
MATERIAL:		CHKD:		DESIGNED BY:	
FINISH:		ENGR:		DATE:	
USED ON: FCC VIC-1540 VIC-1541		NEXT ASSY:		REV: F	
SIZE: 8				15400001	
SCALE: 1/4" = 1"				SHEET 2 OF 2	

commodore

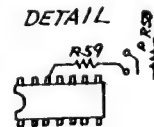
PCB ASSY.
VIC-1540

SCALE 1/4" = 1" SHEET 2 OF 2

REVISIONS			DATE	APPROVED
LTR	ZONE	DESCRIPTION		
		SEE SHEET 1		



DETAIL



-02, -04 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS		DRAWN BY: T. Takada		DATE: 9/20/81	
X XX XXX .5		CHKD:			
MATERIAL		ENGR:			
FINISH		APPR:			
USED ON: VIC-1540 VIC-1541		NEXT ASSY:			
commodore				PCB ASSY. VIC-1540	
SIZE: B		1540001		REV: F	
SCALE: NONE				SHEET 7 OF 8	

PART NO.	DESCRIPTION
1540048-01	FCC (UL) PCB ASSY. VIC-1541. USED LOGIC ARRAY.
1540048-02	PCB ASSY. VIC-1541. USED LOGIC ARRAY.

[Pencil Mark]

1540048

TITLE: PCB ASSY. VIC-1541.

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE APPROVED
A		PRODUCTION RELEASE	12/12/82 T. MATSUMOTO
B		REVISED PER ECO 830085	2/27/83 J. G. L.
C		REVISED PER ECO 830125	3/25/83 J. G. L.
D		REVISED PER ECO 830257	4/11/83 J. G. L.
E		REVISED PER ECO 830368	8/1/83 J. G. L.
F		REVISED PER ECO 830379	8-9-83 J. G. L.
G		REVISED PER ECO 830410	9-21-83 J. G. L.
H		REVISED PER ECO 830423	10-13-83 J. G. L.
J		REVISED PER ECO 830531	12-27-83 J. G. L.

1. SHEET 7 TO 10 OF 10 SIZE B
 ASSY DWG
 NOTES-UNLESS OTHERWISE SPECIFIED:

commodore	DRAWN BY: <u>T. Takubo</u>	DATE: <u>11/16/82</u>	ENGR: <u>T. MATSUMOTO</u>	APPR: <u>12/12/82</u>	SIZE: <u>B</u>	SHEET 1 OF 10
	CHKD: <u> </u>					

QUANTITY REQD PER PART / DASH NO.															ITEM	Q	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES	
															QZ	QI						
															1	1	B	1540050	PC BOARD 238 x155 x1.6t			GLASS EPOXY. G-10
																2						
																3						
																4						
																5	C	1540049-01	SCHEMATIC DIAGRAM			USED LOGIC ARRAY. FCC (UL)
																6	C	1540049-02	SCHEMATIC DIAGRAM			USED LOGIC ARRAY.
																7						
																8						
																9						
																10						
																11						
															1	12	B	901435-01	IC MPS 6502 CPU	UC4		
															2	13		901437-01	MPS 6522 VIA	UC2, UC3		
															1	14		901229-03	2364-197 ROM	UB4		\$E000 ~ \$FFFF
															1	15		325302-01	2364-130 ROM	UB3		\$C000 ~ \$DFFF
															1	16		325572-01	LOGIC ARRAY 40 PIN DIP	UC1		
															1	17		901521-01	74LS00 2-NAND	UC6		
															1	18		901521-17	74LS42 DEC.	UC7		
															1	19		901522-01	7417 BUFFER	UD2		
															1	20		901521-32	74LS86 2-EX-OR	UD3		
															2	21		901522-06	7406 INV. BUF.	UB1, UD1		
															1	22		901521-02	74LS04 INV.	UC5		
															1	23		901521-30	74LS14 SCH. INV.	UA1		
															1	24		901521-26	74LS193 4BIT. COU.	UE6		
															1	25		901521-54	74LS197	UD5		
															S	26		901522-03	74177	UD5		SUBSTITUTE FOR ITEM 25.
															1	27		901510-01	9602	UD4		
															1	28		901523-04	LM311	UE4		
															2	29	B	901523-08	IC NE592	UF3, UF4		
															1	30	B	325502-03	IC TMM2016P RAM	UB2		
															S	31	B	325502-01	IC M58725P RAM	UB2		SUBSTITUTE FOR ITEM 30.
															S	32	B	901522-30	IC 7407	UD2		SUBSTITUTE FOR ITEM 19.
															S	33	B	901521-30	IC 74LS14 SCH. INV.	UC5		SUBSTITUTE FOR ITEM 22
															S	34	B	901522-05	IC 7404 INV.	UC5		
															S	35	B	901522-19	IC 7414 SCH. INV.	UC5		SUBSTITUTE FOR ITEM 22
																36						
																37						

commodore

TITLE:

PCB ASSY. VIC-1541

DRWN BY:

T. T. Kudo

DATE

11/6/82

ENGR:

2/0

DATE

11/17

SIZE

B

REV

J

SHT

2/10

APPR:

T. M.

DATE

12/17

1540048

QUANTITY REQD PER PART / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES											
									0201																		
									2238	B	902671	TRANSISTOR NPN 2SC945	Q2, Q7														
									SS39		902693-01	2SC1815	Q2, Q7			SUBSTITUTE FOR ITEM 38.											
									4440		902679	2SD467	Q8-Q11														
									SS41		902682-01	NPN 2SC2120	Q8-Q11			SUBSTITUTE FOR ITEM 40.											
									1142		902720	PNP 2SA673	Q1														
									4443		902717	2SA733	Q3-Q6														
									SS44		902744-01	PNP 2SA1015	Q3-Q6			SUBSTITUTE FOR ITEM 43.											
									SS45	B	902682-02	TRANSISTOR NPN 2SC2060	Q8-Q11			SUBSTITUTE FOR ITEM 40.											
									46																		
									47																		
									48																		
									49																		
									SS50	B	325505-03	DIODE, ZENER 3.3V 500mW $\pm 5\%$	CR5			SUBSTITUTE FOR ITEM 55.											
									SS51		325506-02	ZENER 5.1V 500mW $\pm 5\%$	CR13			SUBSTITUTE FOR ITEM 58.											
									6652		900750-02	RECTIFIER 1N4002	CR2,4,8-11														
									8853		900850-05	SIGNAL WG713C	CR6,7,12,14-18														
									SS54		900850-01	SIGNAL 1N4148	CR6,7,12,14-18			SUBSTITUTE FOR ITEM 53.											
									1155		325505-01	ZENER 3.3V 500mW $\pm 5\%$	CR5			HZ3C-2											
									SS56		325505-02	3.5V 500mW $\pm 5\%$	CR5			HZ4A-1 SUB. FOR ITEM 55.											
									SS57		900948-06	3.3V 500mW $\pm 5\%$	CR5			1N5226B SUB. FOR ITEM 55.											
									1158		325506-01	5.1V 500mW $\pm 5\%$	CR13			HZ5C-2											
									SS59		900948-11	ZENER 5.1V 500mW $\pm 5\%$	CR13			1N5231 SUB. FOR ITEM 58.											
									2260		900756-01	BRIDGE 1.5A 50V	CR1, CR3			KBP-005											
									SS61		900850-19	DIODE SIGNAL MA162	CR6,7,12,14-18			SUBSTITUTE FOR ITEM 53.											
									SS62		325566-06	CRYSTAL MODULE 16MHz 100ppm	Y1			SUBSTITUTE FOR ITEM 64 (KYOCERA)											
									SS63		-07	100ppm	Y1			SUBSTITUTE FOR ITEM 64 (MIDCOM)											
									1164		-01	50ppm	Y1														
									SS65	B	325566-02	CRYSTAL MODULE 16 MHz 100ppm	Y1			SUBSTITUTE FOR ITEM 64.											
									66																		
									SS67	B	251189-01	COIL, INDUCTOR 2.2uH	L1			SUBSTITUTE FOR ITEM 69											
									SS68		251472-01	2.2uH	L1			SUBSTITUTE FOR ITEM 69											
									1169		325513-01	2.2uH	L1														
									2270		325513-02	22uH	L9, L10														
									3371		325513-03	100uH	L8, L11, L12														
									SS72		251188-02	22uH	L9, L10			SUBSTITUTE FOR ITEM 70											
									SS73		251472-02	22uH	L9, L10			SUBSTITUTE FOR ITEM 70											
									SS74	B	251188-03	COIL, INDUCTOR 100uH	L8, L11, L12			SUBSTITUTE FOR ITEM 71											
commodore										TITLE: PCB ASST. VIC-1541		DRAWN BY: T. Takeuchi		DATE: 11/16/82		ENGR: JLG		DATE: 12/17		SIZE: B		1540048		REV: J		SHT: 3/10	
												CHKD:				APPR: T.M.		DATE: 12/12									

QUANTITY REQD PER PART / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
									0201							
									11	75	B	901528-04	VOLTAGE REGULATOR 12V, 1.5A	VR1		LM340-12 T0-3
									11	76	B	-03	VOLTAGE REGULATOR 5V, 1.2A	VR2		LM340-5 T0-3
									SS	77	B	901528-05	VOLTAGE REGULATOR 5V, 1A	VR2		SUBSTITUTE FOR ITEM 76
										78						
									22	79	B	904914	INSULATION MYLAR T0-3			
									SS	80	B	325551-01	INSULATION SILICONE T0-3			SUBSTITUTE FOR ITEM 79.
										81						
										82						
									22	83	B	903361	CONNECTOR, DIN 6P	P2, P3		
										84						
										85						
										86						
									44	87	B	904150-06	SOCKET IC LOW PRO 40 PIN			
									33	88	B	904150-04	SOCKET IC LOW PRO 24 PIN			
										89						
										90						
										91						
										92						
										93						
										94						
										95						
									11	96	B	251065-04	HEADER ASSY. 2.5 PITCH 4 PIN	P8		MOLEX 5048-04AG
									11	97		325562-06	6 PIN	P7		3022-06A
									11	98		325562-15	15 PIN	P6		3022-15A
									22	99		325562-03	2.5 PITCH 3 PIN	P4, P5		3022-03A
									11	100	B	903316-04	HEADER ASSY. 3.96 PITCH 4 PIN	P1		MOLEX 5271-04A
										101						
										102						
										103						
										104						
										105						
										106						
										107						
										108						
										109						
										110						
										111						

commodore

TITLE: PCB ASSY. VIC-1541

DRAWN BY: T. T. Luong
 CHKD:

DATE: 10/15/83

ENGR: J. E.
 APPR: T. M.

DATE: 11/17
 12/17

SIZE: B

1540048

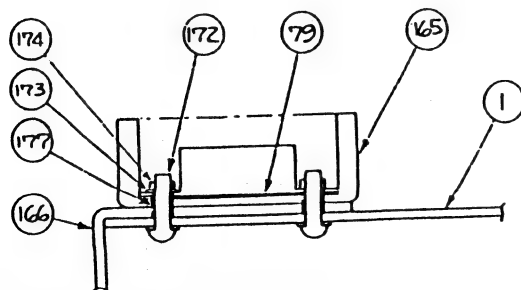
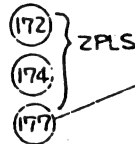
REV: J

SHT: 4/10

QUANTITY REQD PER PART / DASH NO.										ITEM	Q	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES							
								02	01														
								1	112	B	900301-04	CAPACITOR ELECTROLYTIC 220μF/10V	C13										
								1	113		900101-45	6800μF/25V	C17										
								1	114		900101-32	4700μF/16V	C16										
								2	115		900100-33	47μF/16V	C2,C5										
								2	116		900100-32	ELECTROLYTIC 1μF/25V	C1,C4										
								1	117		900402-15	TANTALIUM 10μF/25V	C15										
								1	118		900402-11	TANTALIUM 3.3μF/25V	C44										
								1	119		251070-16	CERAMIC 33μF/50V	C31		± 5%								
								2	120		9000010-53	330pF/50V	C32,C36		± 5%								
								3	121		-54	680pF/50V	C45,C33,C34		± 5%								
								1	122		-25	1000pF/50V	C41										
								24	123		-20	0.1μF/50V	C3.6-10		14,18,19,20,22-30,35,40,43,47,48								
								2	124		900010-14	CERAMIC 0.022μF/50V	C39,C42										
								1	125		900100-40	ELECTROLYTIC 100μF/16V	C46										
								2	126		900402-17	TANTALIUM 0.47μF/16V	C37,C38										
								1	127		-08	4.7μF/25V	C21										
								1	128		900402-14	TANTALIUM 1μF/35V	C11										
								1	129	B	900465-02	CAPACITOR CERAMIC 0.033μF/25V	C12										
									130														
									131														
									132														
								1	133	B	901550-04	RESISTOR CARBON 1/4W±5% 6.8KΩ	R25										
								1	134		-56	47Ω	R1										
								2	135		-108	360Ω	R14,R24										
								4	136		-89	150Ω	R17,18,45,46										
								5	137		-52	220Ω	R4,16,36,55,57										
								2	138		-14	330Ω	R3,R23										
								6	139		-58	470Ω	R20,22,30,37,39		41								
								1	140		-38	510Ω	R27										
								6	141		-31	680Ω	R31,42,47-50										
								6	142		-01	1KΩ	R2,5,6,7,8,43										
								4	143		-53	2KΩ	R9,10,26,58										
								5	144		-18	2.2KΩ	R19,21,32-34										
								1	145		-69	1.5KΩ	R40										
								4	146		-12	22KΩ	R12,35,39,52										
								1	147		-07	100KΩ	R44										
								1	148	B	901550-03	RESISTOR CARBON 1/4W±5% 5.1KΩ	R11										
commodore												TITLE: PCB ASSY. VIC-1541		DRAWN BY: T. Z. Kucha		DATE: 11/16/72	CHKD:	ENG: JH	DATE: 12/1/72	APPR: T. M	SIZE: B	REV: J	SHT: 5/10

QUANTITY REQD PER PART / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES					
									02 01												
									1 1	149	B	901751-43	RESISTOR METAL OXIDE 1/4W ±1% 91Ω	RS1							
									1 1	150		- 18	100Ω	R28							
									1 1	151		- 44	150Ω	R29							
									2 2	152	B	901751-45	RESISTOR METAL OXIDE 1/4W ±1% 9.1kΩ	RS3, RS4							
										153											
										154											
										155											
										156											
										157											
									10 10	158	B	325563-01	FERRITE BEAD	L2-7,13-16							
									S S	159	B	903025-01	FERRITE BEAD	L2-7,13-16		SUBSTITUTE FOR ITEM 158.					
										160											
										161											
										162											
									2	163	B	4022048	SHIELD BOX								
									2	164	B	4022047	SHIELD CAP								
									2 2	165	B	1540023	HEAT SINK T0-3								
									1 1	166	B	1540011	HEAT SINK REGULATOR								
									1 1	167		904907-01	COMPOUND THER FOR HEAT SINK								
										168											
										169											
										170											
										171											
									4 4	172	B	325541-05	SCREW PAN HEAD/EXT TOOTH WASHER M3-12								
									2 2	173	B	905655-03	EXTERNAL TOOTH WASHER M3								
									4 4	174	B	905960-03	NUT HEX. M3								
										175											
									4 4	176	B	905477-04	TUBING, INSULATION 3.0 DIA x 7MM			USE WITH ITEM 76					
									5 5	177	B	905477-02	TUBING, INSULATION 3.5 DIA x 5MM			SUBSTITUTE FOR ITEM 176. USE WITH ITEM 77					
										178											
									2 2	179	B	905477-05	TUBING, INSULATION 0.8 DIA x 25MM								
										180											
									2 2	181	B	251584-01	WRAPPING WIRE AWG 28 L=30MM								
									1 1	182		- 02	L=104MM								
									1 1	183	B	251584-03	WRAPPING WIRE AWG 28 L=119MM								
										184											
										185											
commodore												TITLE: PCB ASSY. VIC-1541		DRWN BY: J. Tokuda	DATE: 1/16/82	ENGR: 10	DATE: 2/7/82	SIZE: B	1540048	REV: J	SHT: 6/10
														CHKD:		APPR: 7.7	DATE: 12/1/82				

LTR	ZONE



commodore

P.C.B ASSY
VIC-1541

SIZE
B

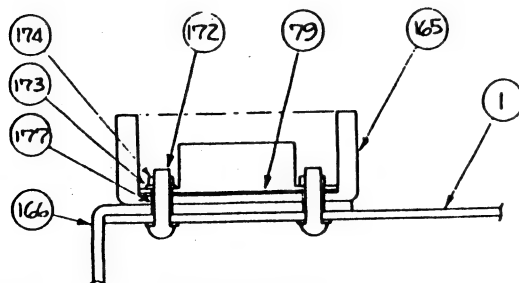
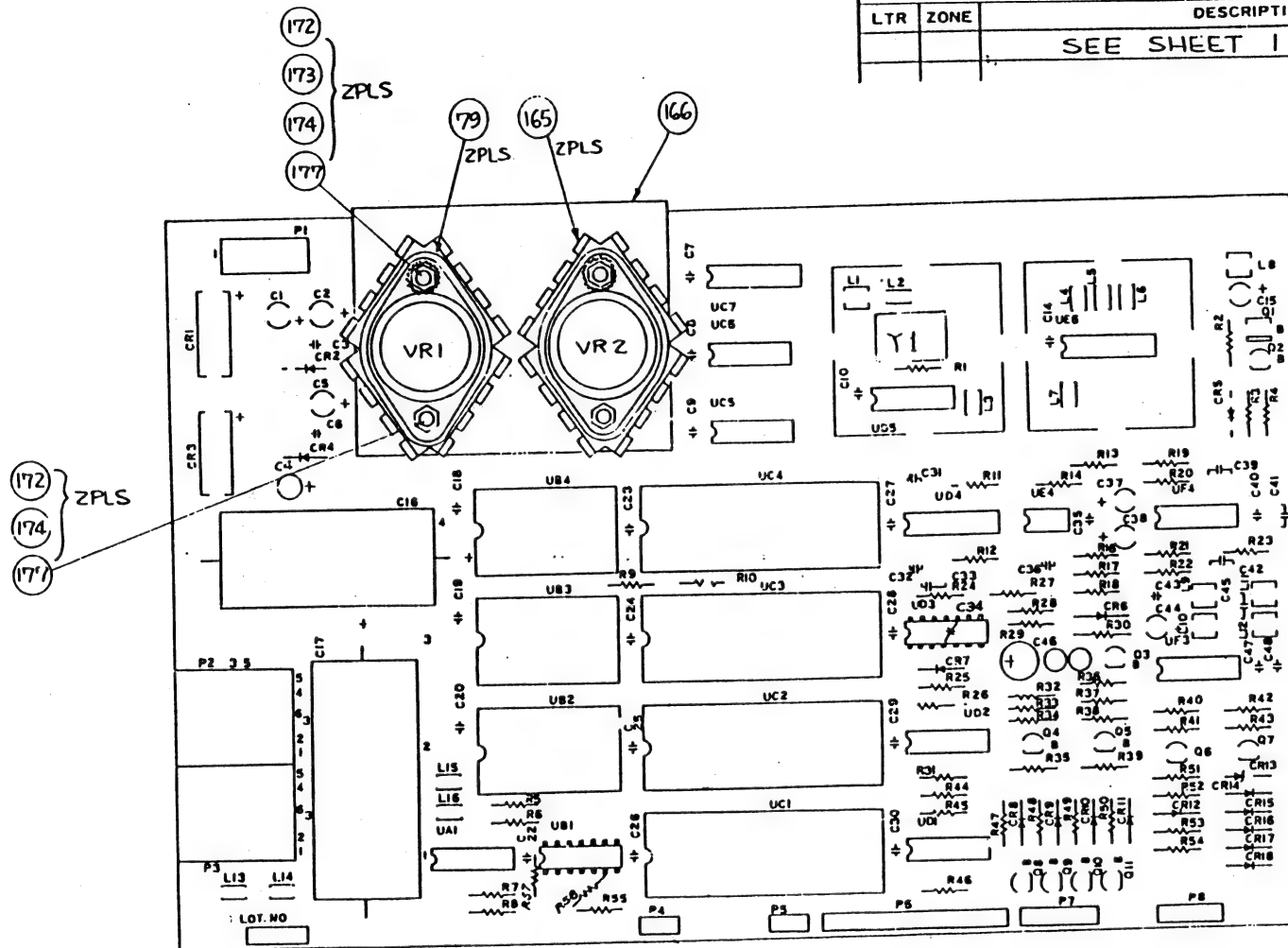
1540048

REV
✓

SCALE NONE	SHEET 7 OF 10
------------	---------------

<u>UNLESS OTHERWISE SPECIFIED</u> TOLERANCES ON: DECIMALS				DRAWN BY: K. Maryama		DATE	
.X	.XX	.XXX	L'S	CHKD: T. Kuchel	12/6/82		
				ENGR: LIT	12/7/82		
±	±	±		APPR: T. HOTSIS	12/8/82		
MATERIAL:				USED ON		NEXT ASSY	
FINISH:				VIC-1341			

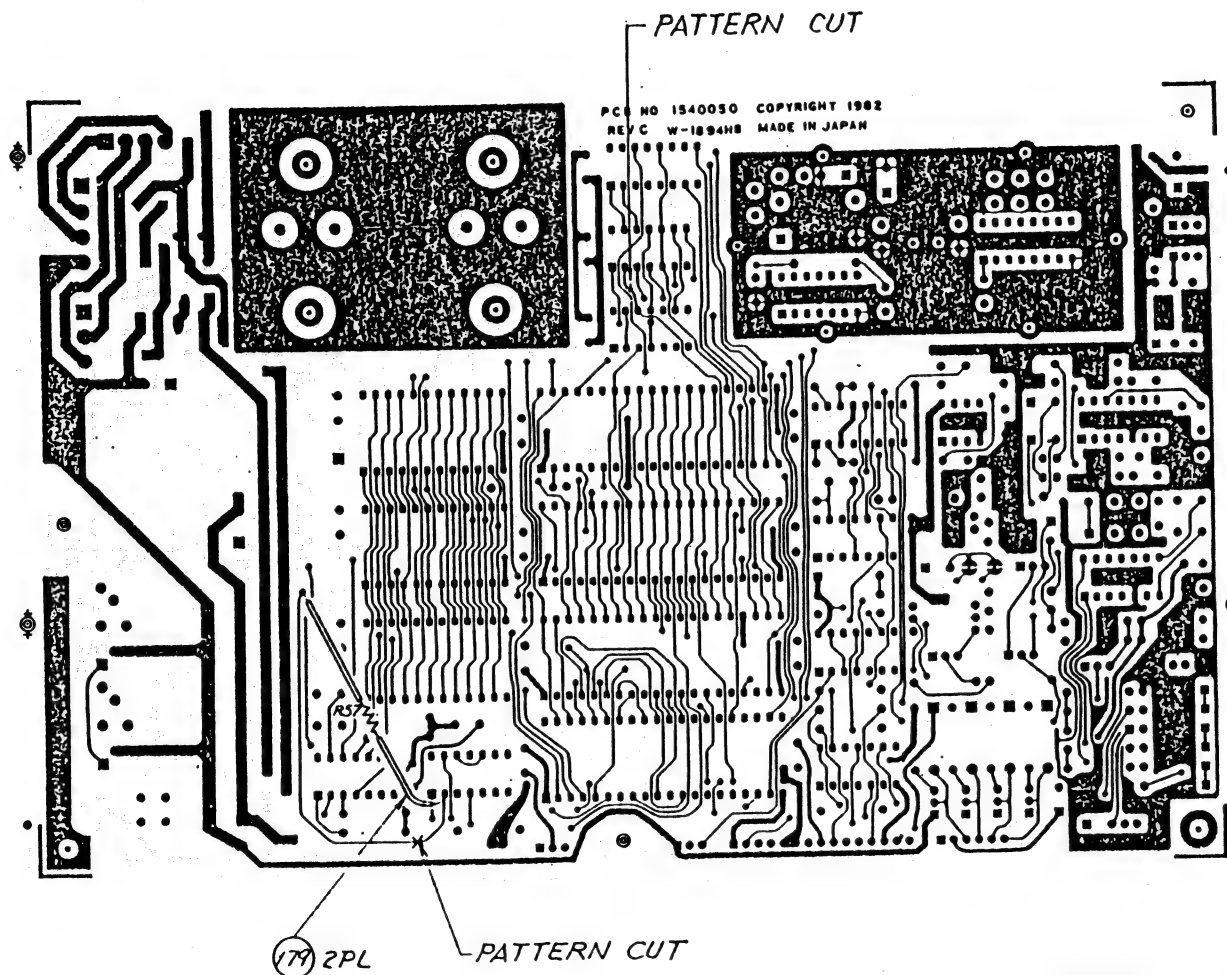
REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



-02 SHOWN

UNLESS OTHERWISE SPECIFIED		DRAWN BY:		DATE	
TOLERANCES ON:		K. Maruyama		12/11/82	
DECIMALS		CHD: 7		12/11/82	
.X .XX .XXX L'S		ENGR: 1		12/11/82	
± ± ± ±		APPR: 7		12/11/82	
MATERIAL:		USED ON		NEXT ASSY	
FINISH:		VIC-1541			
commodore				P.C.B ASSY	
				VIC-1541	
SIZE				REV	
B				J	
SCALE NONE				SHEET 8 OF 10	

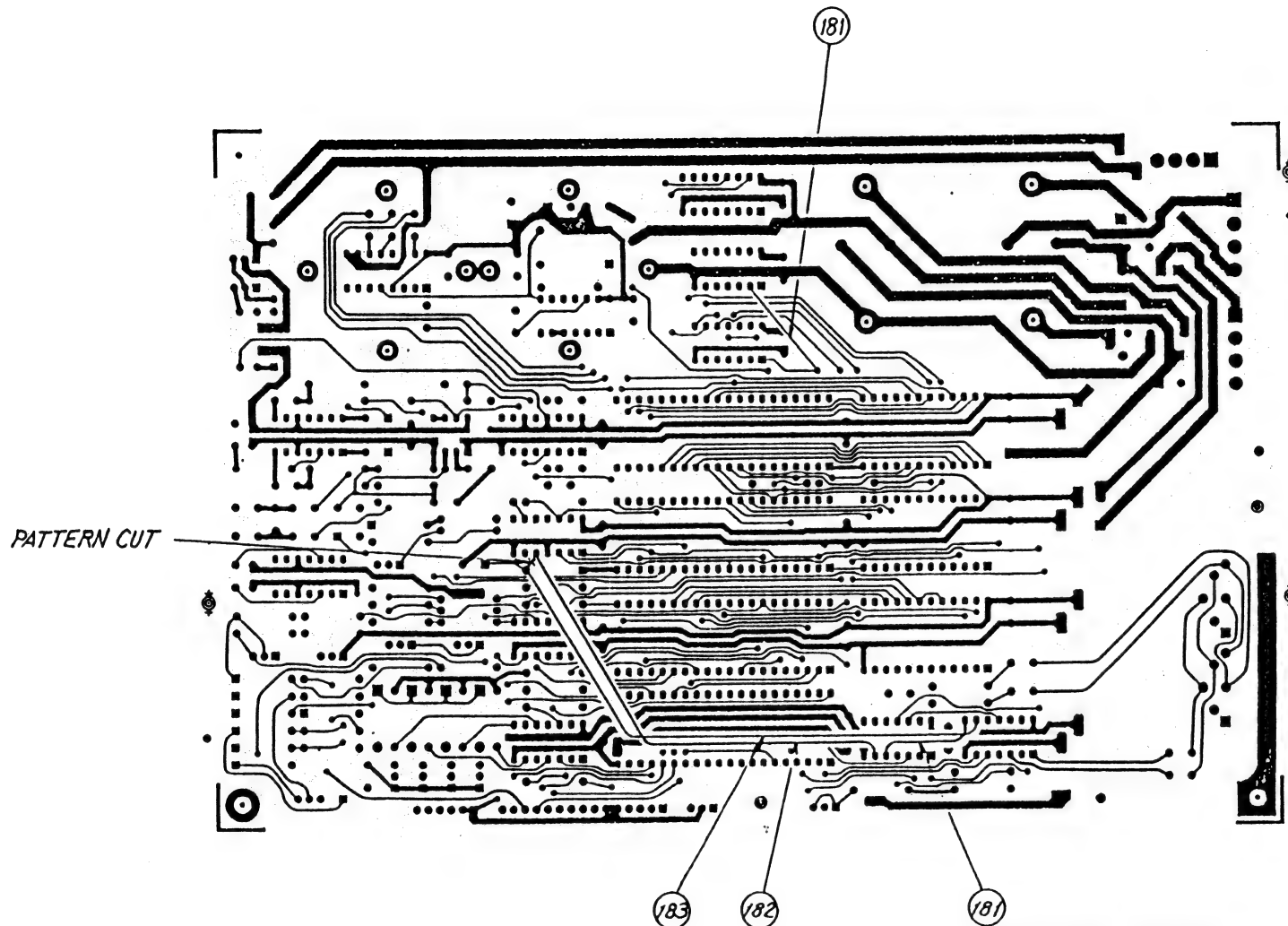
REVISIONS			
LTR	ZONE	DESCRIPTION	DATE APPROVED
		SEE SHEET 1	



-01, -02 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XX .XXX .4"	DRAWN BY:	DATE	commodore PCB ASSY VIC-1541	
	R. Jida	9-6-83		
	CHKD: yzhmaka	9/19/83		
	ENGR: T. A. E. 106	9/18/93		
MATERIAL:	USED ON	NEXT ASSY	SIZE B 1540048 SCALE NONE SHEET 9 OF 10	
FINISH:	VIC-1541			
			REV J	

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



-01, -02 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XXX .4'S X XX XXX 4'S	DRAWN BY: <i>R. Jida</i>		DATE 9-6-83		commodore PCB ASSY VIC-1541	
	CHKD: <i>R. Jida</i>		7/19/83			
	ENGR: <i>T. Zbuda</i>		4/23/83			
	APPR:					
MATERIAL:	USED ON VIC-1541	NEXT ASSY		SIZE B	1540048	REV J
FRESH:					SCALE NONE SHEET 10 OF 10	

QUANTITY REQD PER PART/DASH NO.											ITEM	D.S.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES
-10	-09	-08	-07	-06	-05	-04	-03	-02	-01								
											1						
											2						
											3						
											4		1540004-01	BASE ASSY	UL		
											5		-02		CSA		
											6		-03		JIS		
											7		-04		VDE		
											8		-05		BSI		
											9		-06		UL		
											10		-07		CSA		
											11		-08		JIS		
											12		-09		VDE		
											13		1540004-10	BASE ASSY	BSI		
											14						
											15						
											16						
											17						
											18						
											19						
											20						
											21						
											22						
											23	B	1540016-01	PLATE MODEL	VIC-1540		
											24		-02		VIC-1540		
											25	B	1540016-03	PLATE MODEL	VC-1540		
											26						
											27						
											28	B	154005Z	PLATE MODEL	1541		
											29						
											30						
											31						
											32	B	950150-02	FOOT SELF ADHESIVE		SJ 5012	
											33						
											34						
											35						
											36						

commodore		TITLE: MAIN ASSY 1541		DRAWN BY: K. Mawama	DATE: 8/10/92	CHKD: T. Tokuda	DATE: 8/10/92	APPR: S. Aikawa	DATE: 8/10/92	SIZE: B	1540005	SHEET: 2 of 4
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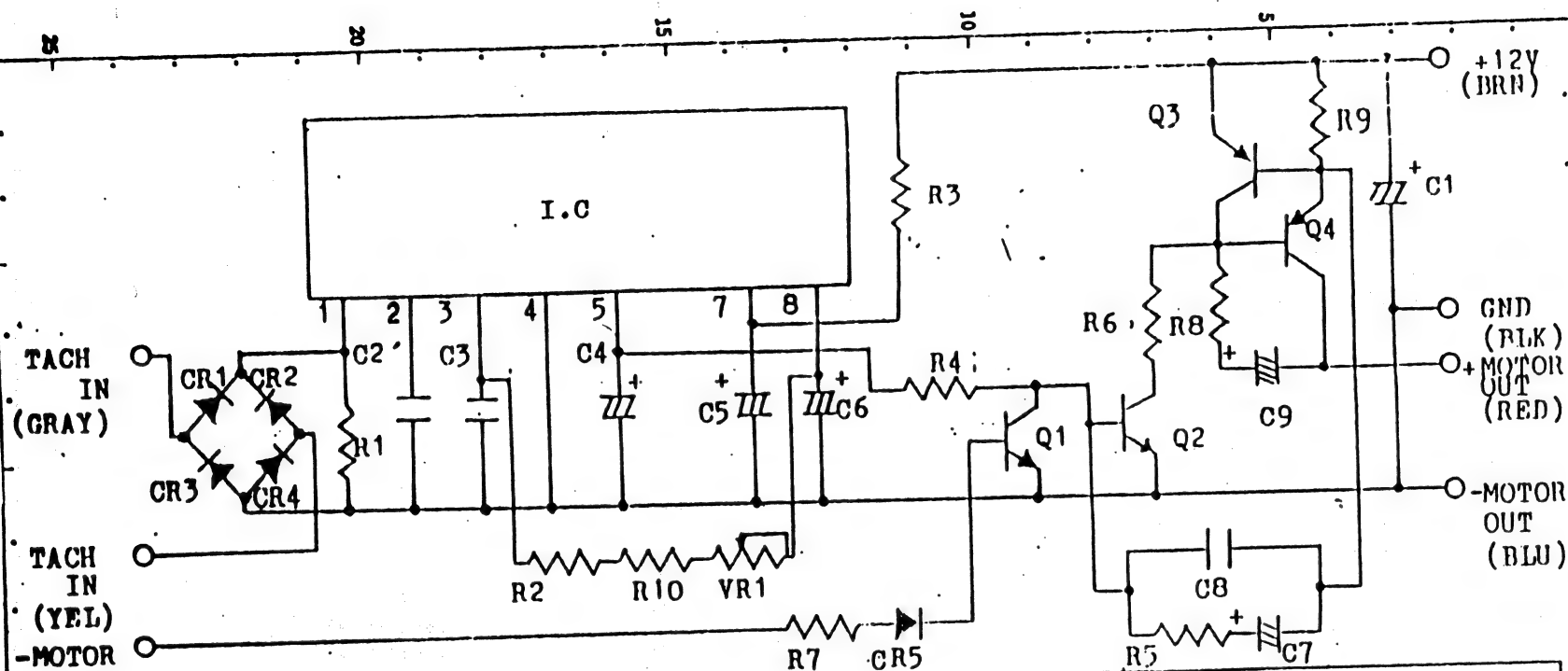
PART NO.	DESCRIPTION				A	8/26/81	PRODUCTION RELEASE		0.1
1540005 -01	MAIN	ASSY	VIC-1540	UL	B	8/20/81	ADDED ITEM 32 FOR UL (FCC)	7.7	6.7
-02			VIC-1540	CSA	C	8/13/81	ADDED DASH 06 THRU 10	7.7	AT
-03			VIC-1540	JIS	D	3/5/83	ADDED ITEM 28	N.N	10
-04			VC-1540	VDE	E	3/5/83	REVISED PER ECO 830102		86
1540005 -05	MAIN	ASSY	VIC-1540	BSI	F	3/25/83	REVISED PER ECO 830131		ALW
-06			1541	UL	G	7/5/83	REVISED PER ECO 830314		2.5.11.1
-07			1541	CSA	H	7/12/83	REVISED PER ECO 830317		2.12.1
-08			1541	JIS	J	10-13-83	REVISED PER ECO 830419		2.13.1
-09			1541	VDE					
1540005-10	MAIN	ASSY	1541	BSI					

3. TO BE USED "LISTED UL $\text{\textcircled{UL}}$ " ON RATING LABEL.
☒ MUST USE ITEM 5B WHEN ITEM 4B USED.
 1. SHEET 4 OF 4 IS C-SIZE

ASSY DWG.

NOTES.

commodore	TITLE:	MAIN ASSY 1541	DRAWN BY:	DATE:		DATE:	SIZE:	1540005	SHEET
			Y. IMAGAWA	11/1/81		11	B		
			CHKD:	11/1/81	APPR:	11/1/81	12/2/81		



Symbol	Description	Symbol	Description
I.C	CX-065B	R8	Resistor, 150Ω 1/4W
Q1	Transistor	R9	Resistor, 0.68Ω 2W
Q2	Transistor	R10	Resistor, 5.1KΩ 1/8W
Q3	Transistor	VR1	Variable Resistor, 20KΩ
Q4	Transistor	C1, 5, 6	Capacitor, 10μ F 35V
CR1, 2, 3, 4, 5	Diode	C2	Capacitor, 0.0047μ F 50V
R1, 7	Resistor, 1KΩ 1/4W	C3	Capacitor, 0.033μ F 50V
R2	Resistor, 68KΩ 1/4W	C4, 9	Capacitor, 0.47μ F 35V
R3	Resistor, 220Ω 1/4W	C7	Capacitor, 2.2μ F 16V
R4	Resistor, 3.3KΩ 1/4W	C8	Capacitor, 0.068μ F 50V
R5	Resistor, 2.7KΩ 1/4W		
R6	Resistor, 820Ω 1/4W		

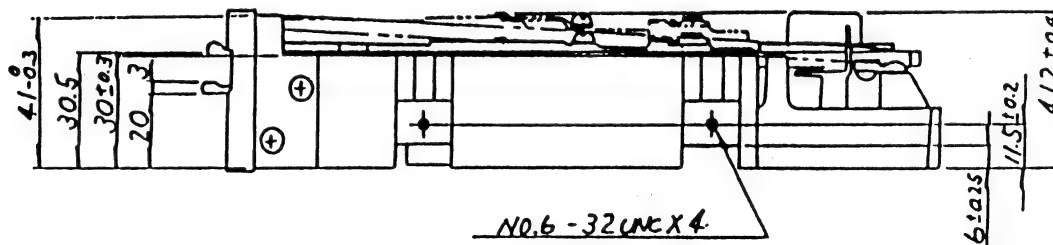
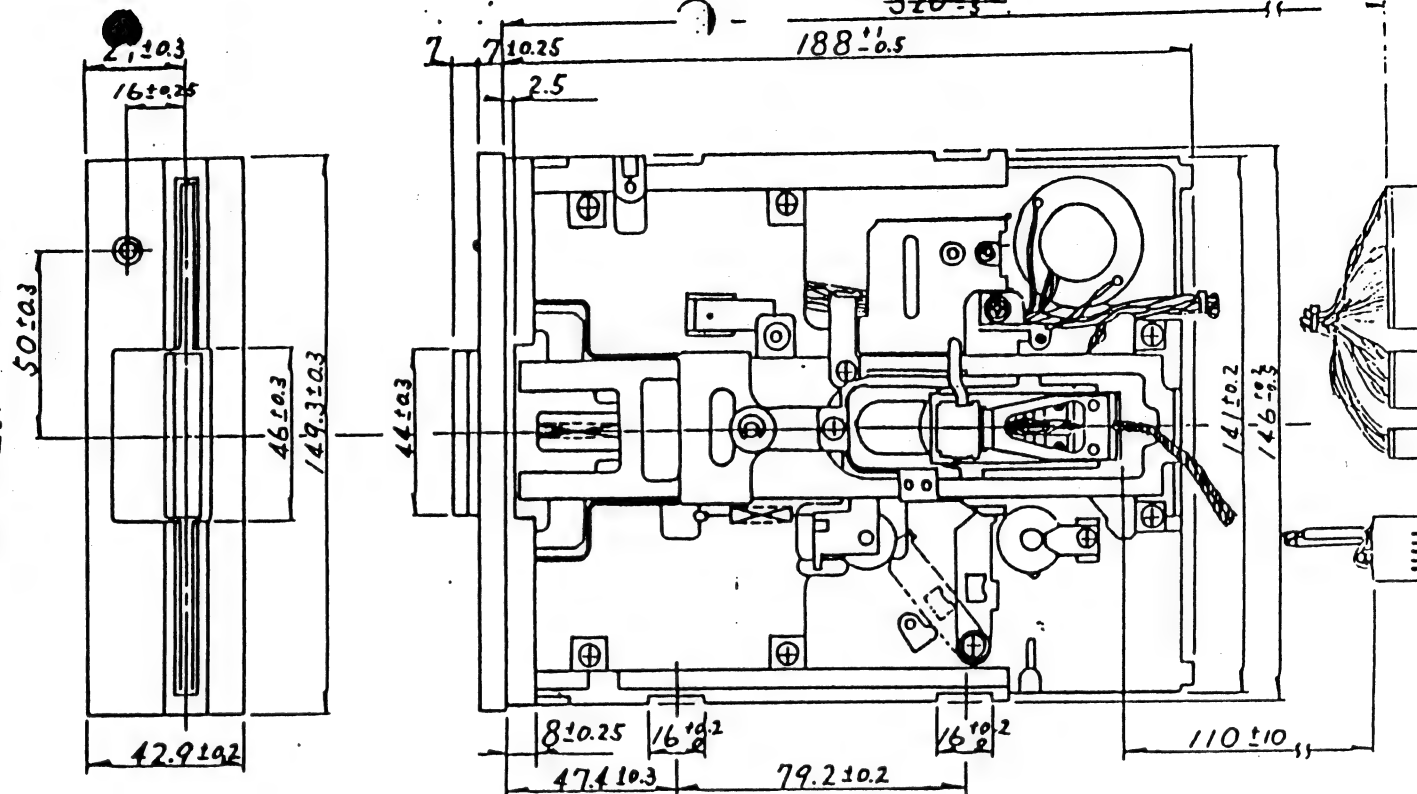
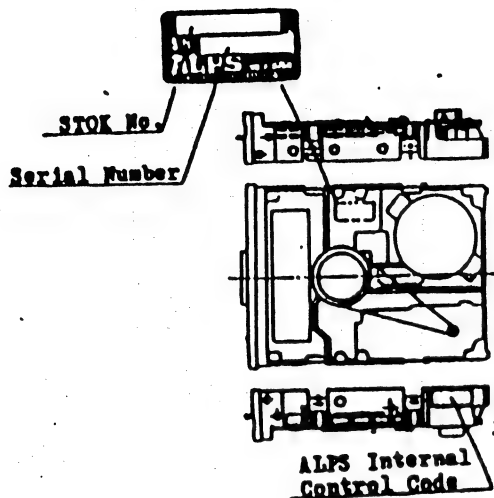
FIG. 1

FIG. 1 DISK DRIVE SPECIFICATION

4. Motor Control P.C.B.

FDM2224

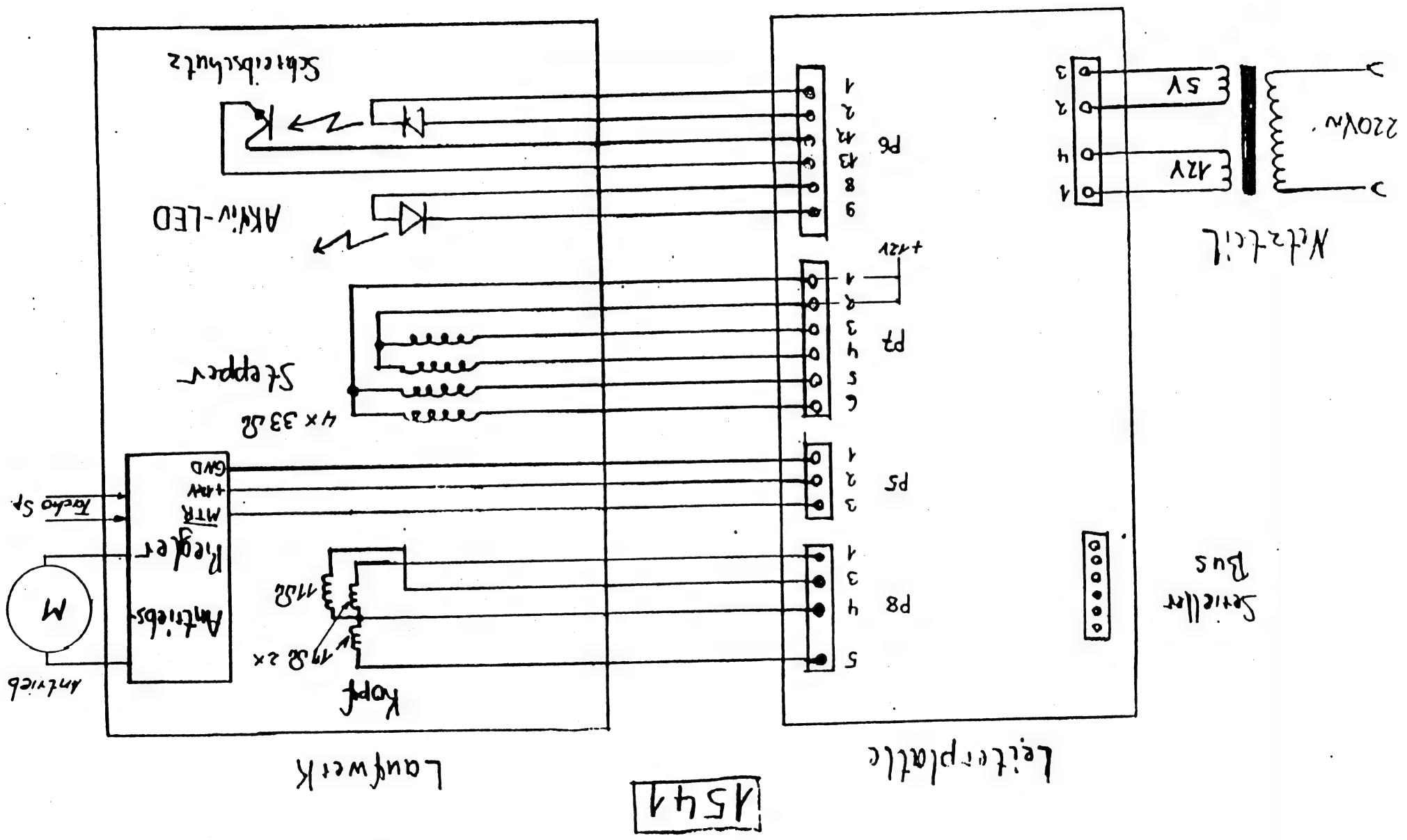
Label Position



NOTES 1. APPLY THE SPEC. OF FDM2224.

TOLERANCES UNLESS OTHERWISE SPEC.	
BASIC DIMENSIONS	TOLERANCES
UP TO 10	± 0.3
BETWEEN 10 TO 100	± 0.5
ABOVE 100	± 0.8
ANGULAR DIMENSIONS ± 3°	

CUSTOMER				CUSTOMER P/N			SAMPLE NO	
Jモドール ジャパン (株)							E6164912M	
							FDM2224	
							TITLE	
							ASSEMBLY DRAWING	
							DOCUMENT NO.	





S E R V I C E - I N F O 7/84

Umbauvorschrift FLOPPY 1540/1541

Bei einigen Geräten vom Typ C64 trat ein Defekt an den Peripheriebausteinen auf, wenn nicht eine bestimmte Anschlußreihenfolge eingehalten wurde (erst Peripherie-Kabel, dann Netz-Kabel). (Siehe Seite 11 unten)

Ferner wurde der Datenbus zeitweise blockiert, wenn mehrere Peripheriegeräte gleichzeitig betrieben wurden (z.B. zwei Floppies oder Floppy und Drucker).

Die Ursache hierfür lag am RESET-Verhalten und am Betriebssystem der 1541 Floppy.

Um diese Mängel zu beseitigen gelten folgende Umbauvorschriften:

Seite 2 bis 4 : lange Platinenausführung
 PCB No. 1540007 Rev.A bis Rev.E

Seite 5 bis 7 : kurze Platinenausführung
 PCB No. 1540050 ab Rev.A

Folgende Testprogramme sind für die Floppy 1541 erhältlich:

970140.c	sfterr	Softerrortest	(C64)
970141.a	sfterr	Softerrortest	(VC20 mit 16 K)
970106.c	sfteff	Softerrortest mit Stoptest	(C64)
970150.a	fintst	Finaltest	(C64)
970127.a	alpadj	ALPS Drive Adjustment	(C64)
ary-03		Stop Adjustment	(C64 oder VC20)
f3-03		Finaltest mit	
		Kompatibilitätstest	(VC20 mit 3 K)
970140.cl5	sftary	für Tests nach dem Umbau	(C64)

S E R V I C E - I N F O

1) Zeitkonstante UG3 :

	<u>Original</u>	<u>ersetzen durch</u>
R 26	2,2 kOhm	5,1 kOhm
C 33	150 pF	33 pF

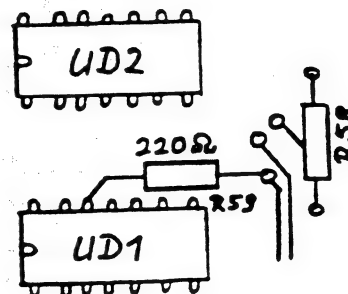
2) RESET - Schaltkreis :

	<u>Original</u>	<u>ersetzen durch</u>
R 43	100 kOhm	6,8 kOhm
R 59	nicht vorhanden	220 Ohm

3) DOS - Rom :

	<u>Original</u>	<u>ersetzen durch</u>
UAB 5	901229-03 (1541) }	901229-05 AE } EPROM mit
oder	325303-01 (1540) }	oder 901229-06 AA } Adapter
		bzw. 901229-05 } ROM

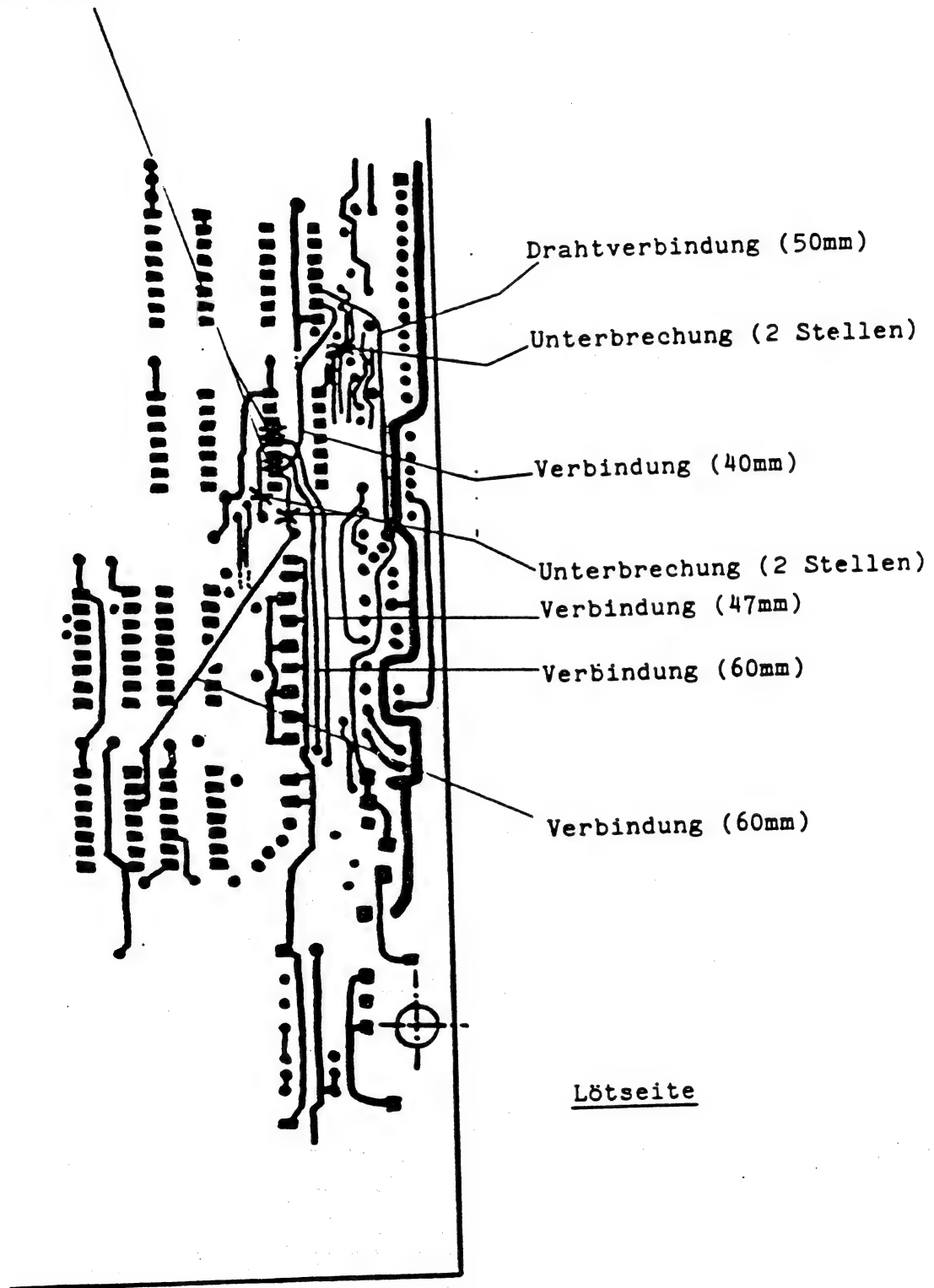
4) Einbauhinweis zu R 59 :



The schematic diagram illustrates a digital circuit with the following components and connections:

- Power Supply:** A +5V supply is connected to the circuit. A 100µF/16V capacitor (C56) is connected to the supply.
- Input Stage:** A 74LS14 inverter (UC1) is connected to the +5V supply. Its output (pin 6) is connected to the input (pin 9) of a 7406 inverter (UD1). The output (pin 8) of the 7406 inverter is connected to the input (pin 10) of a 74LS14 inverter (UC1). The output (pin 11) of the 74LS14 inverter is connected to the input (pin 13) of a 7406 inverter (UD1). The output (pin 12) of the 7406 inverter is connected to the input (pin 1) of a 74LS10 NAND gate (UF3).
- Logic Gate:** A 74LS10 NAND gate (UF3) is connected to the +5V supply. Its output (pin 6) is connected to the input (pin 10) of a 7406 inverter (UD1). The output (pin 11) of the 7406 inverter is connected to the input (pin 13) of a 74LS14 inverter (UC1). The output (pin 12) of the 74LS14 inverter is connected to the input (pin 1) of a 74LS10 NAND gate (UF3).
- Output Stage:** The output (pin 6) of the 74LS10 NAND gate (UF3) is connected to the input (pin 10) of a 7406 inverter (UD1). The output (pin 11) of the 7406 inverter is connected to the input (pin 13) of a 74LS14 inverter (UC1). The output (pin 12) of the 74LS14 inverter is connected to the input (pin 1) of a 74LS10 NAND gate (UF3).
- Resistors:** A 2k resistor (R38) is connected between the +5V supply and the input (pin 9) of the 7406 inverter (UD1). A 1k resistor (R34) is connected between the +5V supply and the input (pin 10) of the 74LS14 inverter (UC1). A 1k resistor (R58) is connected between the +5V supply and the input (pin 13) of the 7406 inverter (UD1). A 220Ω resistor (R59) is connected between the +5V supply and the input (pin 13) of the 7406 inverter (UD1).
- Other Components:** A 74LS191 counter (D3) is connected to the output (pin 6) of the 74LS10 NAND gate (UF3). A 100µF/16V capacitor (C56) is connected to the +5V supply.

Leiterbahnunterbrechung (2 Stellen)



1) Zeitkonstante UD4 :

	<u>Original</u>	<u>ersetzen durch</u>
R 11	2,2 kOhm	5,1 kOhm
C 31	150 pF	33 pF

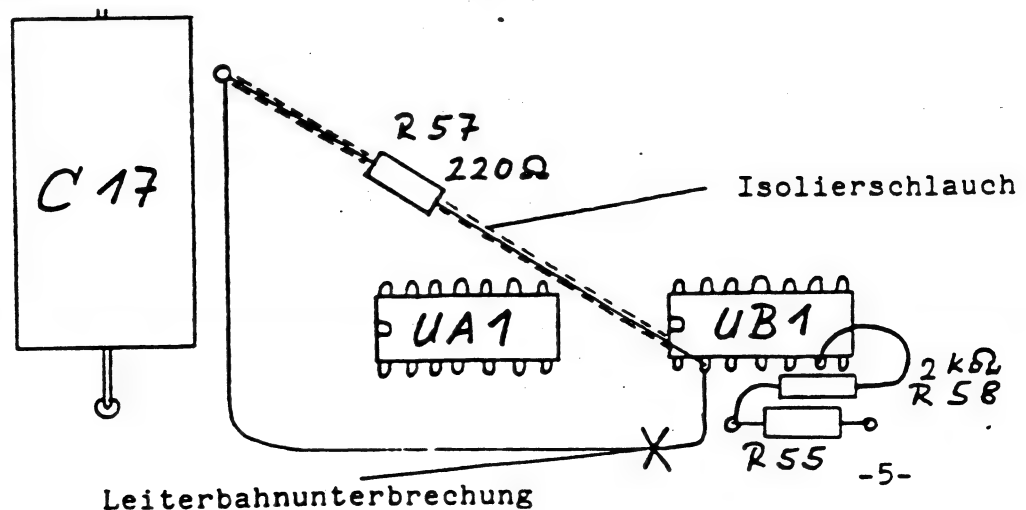
2) RESET - Schaltkreis :

	<u>Original</u>	<u>ersetzen durch</u>
R 25	100 kOhm	6,8 kOhm
R 57	nicht vorhanden	220 Ohm
R 58	nicht vorhanden	2 kOhm

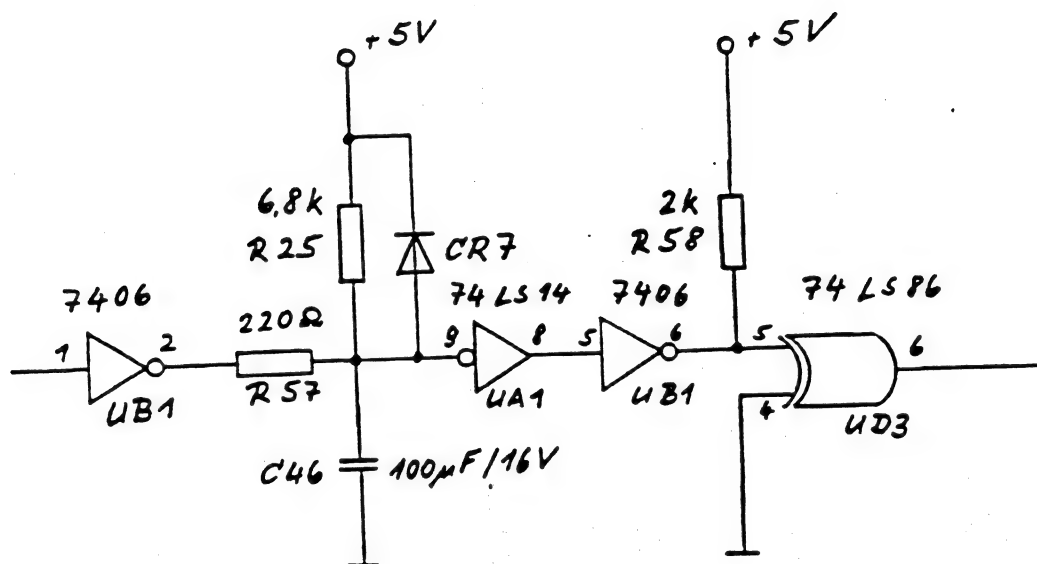
3) DOS - Rom :

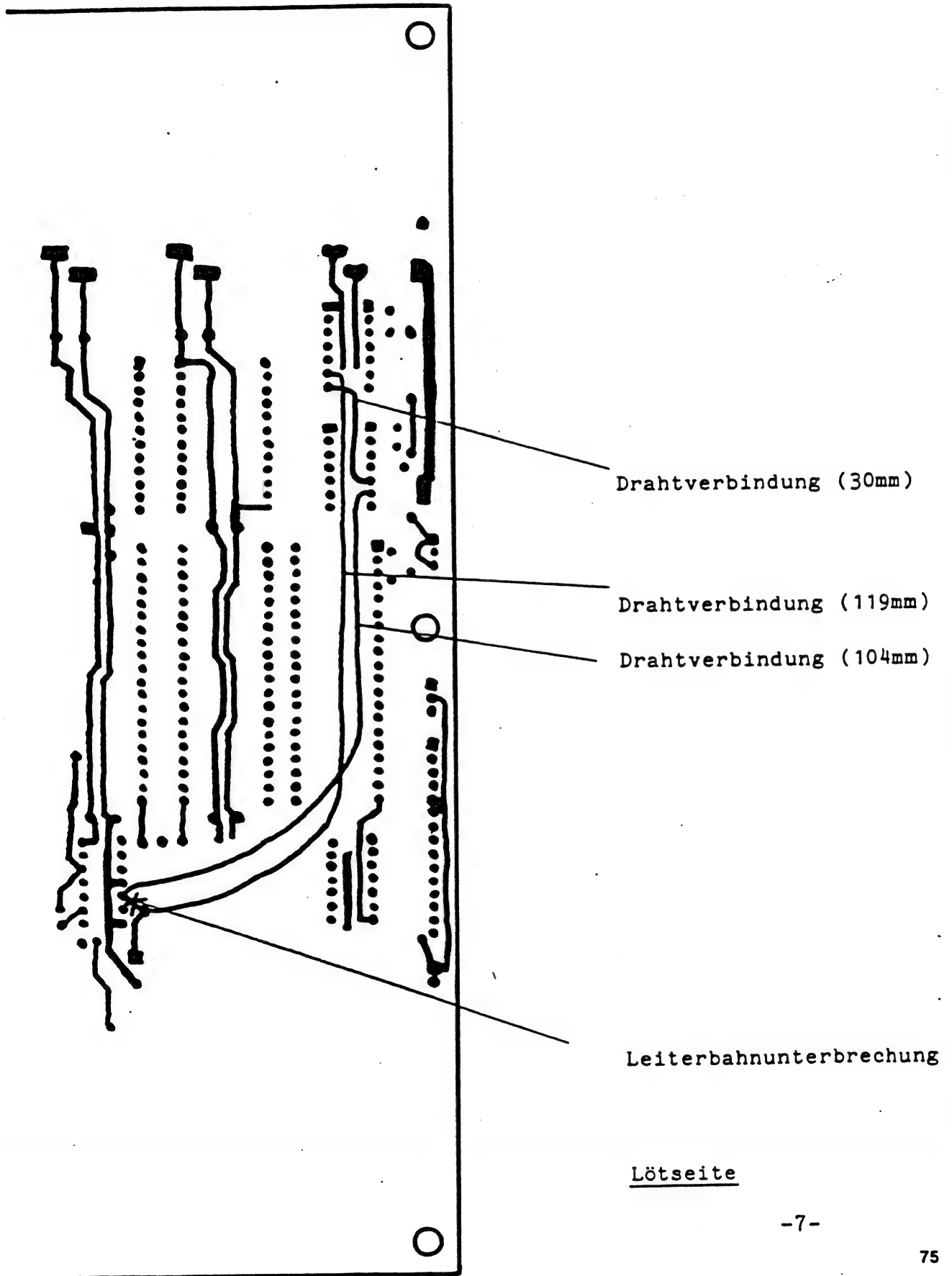
	<u>Original</u>	<u>ersetzen durch</u>
UB 4	901229-03	901229-05 AE EPROM mit oder 901229-06 AA Adapter bzw. 901229-05 ROM

4) Einbauhinweis zu R 57 und R58 :



Der neue RESET - Schaltkreis :







S E R V I C E - I N F O

Hinweis zum DOS:

Durch ein Versehen wurde in einige umgebaute Floppies 1541 ein EPROM 2764 mit der Bezeichnung 901229-05 Ae eingesetzt. Dieses hat die gleichen Fehler wie das ROM 901229-03 und muß wie unter Punkt 3 beschrieben ausgetauscht werden.

Die Version 901229-05 AE hat noch einen Fehler, der jedoch nur durch Abbruch des Formatierens (z.B. durch Öffnen der Laufwerksklappe) auftritt: Beim nächsten Formatierungsversuch fehlen die ersten Spuren, ohne daß eine Fehlermeldung erscheint. Nach einem solchen Abbruch sollte deshalb die Floppy aus- und wieder eingeschaltet oder folgende Zeile vor dem nächsten Formatierbefehl abgeschickt werden:

```
OPEN1,8,15:PRINT#1,"M-W"CHR$(81)CHR$(0)CHR$(1)CHR$(255):CLOSE1
```

Laufwerk

Das Laufwerk wurde geändert, um das Verstellen von Stopeinstellung und Alignment bei Erwärmung zu verhindern. Außerdem wurde der Luftspalt der Stopeinstellung vergrößert. Die neuen Laufwerke sind wie folgt gekennzeichnet:

- A) Seriennummer > 00938841 oder
- B) Markierung (grüner Strich) auf der Oberseite des Laufwerks neben dem Befestigungspunkt für die Spiralfeder!



S E R V I C E - I N F O

Interfacestecker

Sollte der Interfacestecker schwergängig sein, kann dies durch folgende Handgriffe korrigiert werden:

- Die sechs Befestigungsschrauben des Chassis im Boden lockern.
- Befestigungsschrauben festziehen.
- Falls erforderlich, Deckel vor dem Festziehen nach rechts drücken.



S E R V I C E - I N F O

Tests nach dem Umbau

Stopring:

Für die Kontrolle und Justage der Stopeinstellung dienten folgende Programme:

— Alte Laufwerke (0,25 mm Luftspalt): 970127 (Step 6)
Neue Laufwerke (0,35 mm Luftspalt): ARY-Ø3 (Stop Limit Test)

Justage: Die Stopeinstellung ist grundsätzlich mit dem Testprogramm ARY-Ø3 zu testen und evtl. zu justieren (auf 0.35 mm Luftspalt). Nach der Justage Schraube mit Lack sichern.

Track-1-Test: Mit dem Testschritt S des Testprogramms 970106.C ist die Stopeinstellung zu überprüfen. Dazu muß eine Track-1-Diskette verwendet werden.

Track-1-Diskette: Diese Diskette erzeugt man durch folgendes Verfahren:

- Physikalisches Löschen einer Diskette im äußeren Bereich (z.B. mit kräftigem Permanentmagnet, Löschung mit Oszilloskop am Leseverstärker überprüfen!).
- Formatieren von Spur 1. Dies sollte mit einem im Alignmet kontrollierten Drive erfolgen.
(Kommando: open1,8,15,"nØ:x,ØØ")
Sofort nachdem der Schreib-/Lesekopf auf Spur 2 positioniert hat, ist die Laufwerksklappe zu öffnen.



S E R V I C E - I N F O

Softerrortest: 2 Passes mit Programm 970140.C, in dem Zeile 1080 geändert wurde: NP=ØØ2

Starten des Programms mit RETURN

Testdauer: 8 min.

Am Ende muß die rote LED 1 x blinken = OK.

2 x blinken = zu viele Fehler im 1. Pass

3 x blinken = kein Zugriff zur LOG-Datei

4 x blinken = Abbruch beim Formatieren

Nach Aus- und Einschalten der Floppy mit Ø die LOG-Datei auslesen.

Es muß erscheinen:

Summary of Drive Ø

Number of Passes: 2

Total Errors = Ø

Countable Errors = Ø

HINWEIS: Um Ausfälle infolge von Zentrierfehlern zu vermeiden, sollte die Laufwerkssklappe langsam während des Drehens geschlossen werden (z.B. unmittelbar nach dem Einschalten der Floppy).

Da der Antriebsriemen bei Kälte schlecht haftet, sollte die Floppy vor dem Test Raumtemperatur haben.

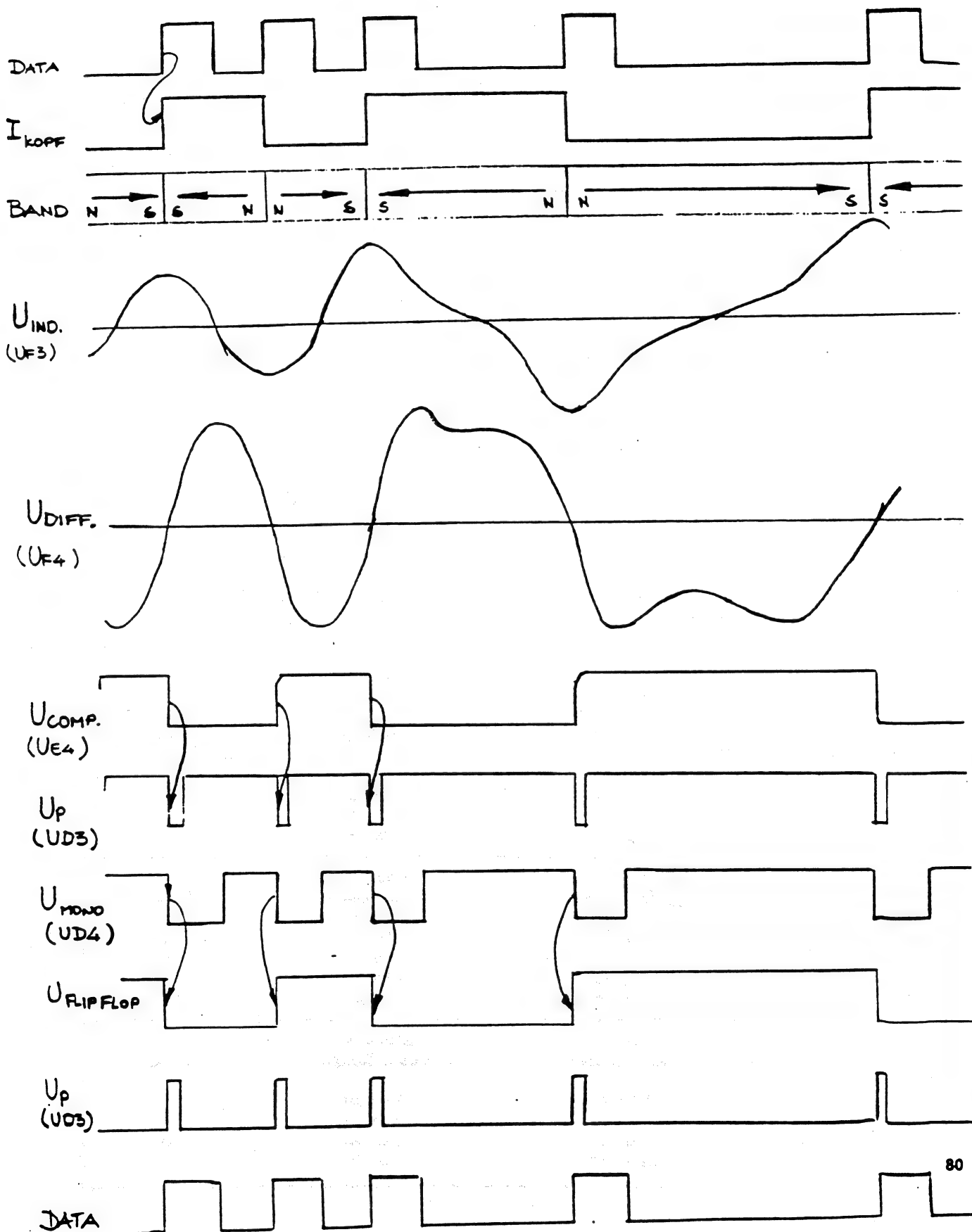
Für die Kontrolle des Alignments dient das Programm 970127(STEP 5: Alignment Test). Als Alignmentdiskette läßt sich auch eine 8050/8250 Alignmentdiskette verwenden, wenn auf das Sync-Signal zum Triggern des Oszilloskops verzichtet wird.

ACHTUNG: Der C64 und die anzuschließenden Fernseher entsprechen der Schutzklasse 2, während die Floppy 1541 mit dem Chassis auf Erde liegt. Dadurch kann der Portbaustein 6526 (U2) im C64 bei häufigem Verbinden und Trennen des Interfacesteckers (z.B. beim Softerrortest) zerstört werden. Um dies zu vermeiden, ist die Masse des C64 auf Erde zu legen (z.B. über das Halteblech am Cartridge-Stecker) oder Schutzdioden in den C64 einzulöten (siehe Bild S. 12).

SIGNALVERLAUF DER DATEN

1541

(ANALOG - TEL)



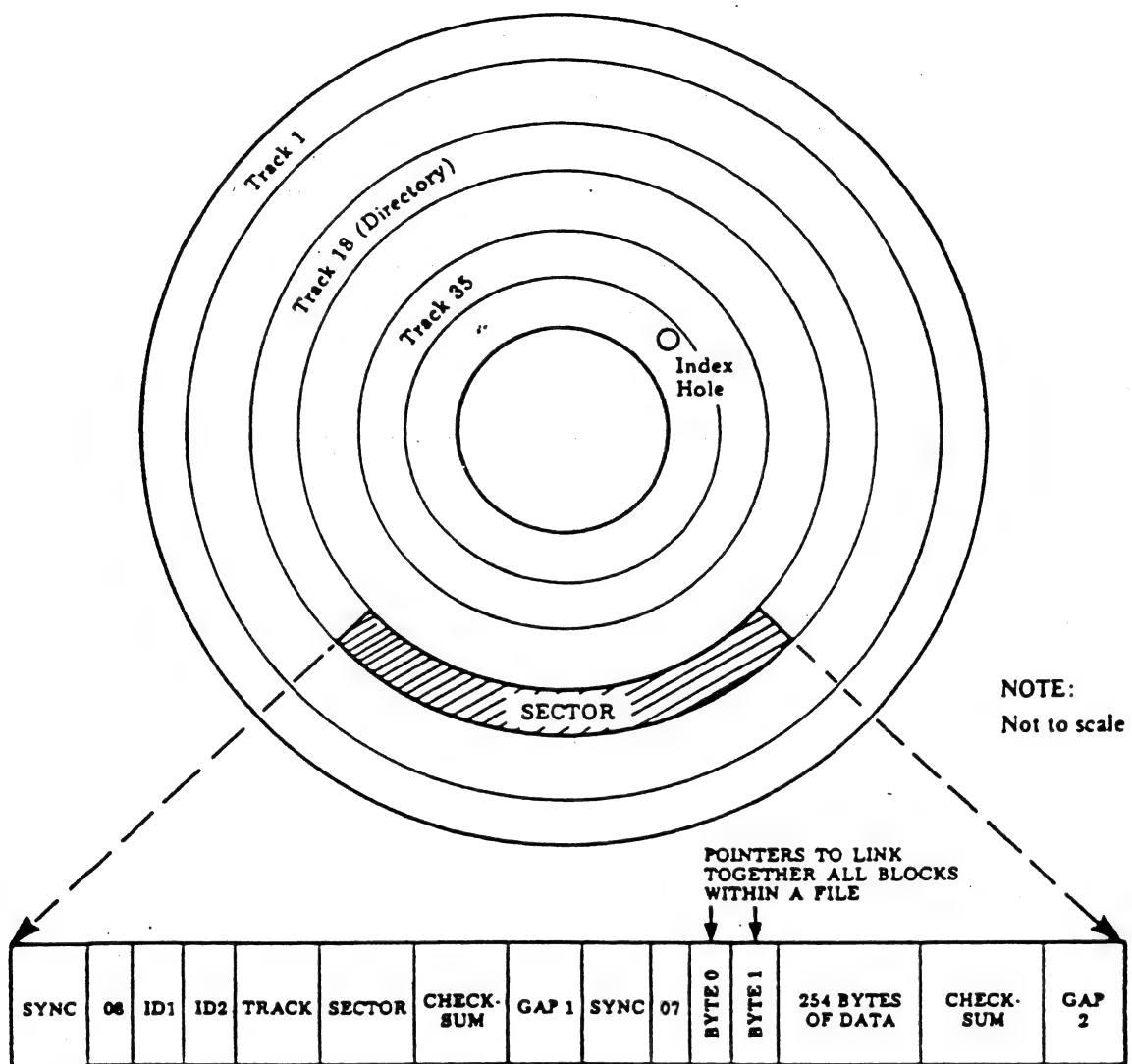


Table 6. Block Distribution By Track

2040, 3040 Track number	Block or Sector Range	Total
1 to 17	0 to 20	21
18 to 24	0 to 19	20
25 to 30	0 to 17	18
31 to 35	0 to 16	17
4040 Track number	Block or Sector Range	Total
1 to 17	0 to 20	21
18 to 24	0 to 18	19
25 to 30	0 to 17	18
31 to 35	0 to 16	17
8050 Track number	Block or Sector Range	Total
1 to 39	0 to 28	29
40 to 63	0 to 26	27
54 to 64	0 to 24	25
65 to 77	0 to 22	23

S E R V I C E - I N F O R M A T I O N

Betr.: PCB-ASSY 250442 und 250446

CBM 1541

Motoranlauf beim Einlegen der Diskette

Bedeutung der Jumper J1 bis J7

BSW, 09.11.84

Auf den oben angegebenen Leiterplatten befinden sich nicht bestückte Bauteilpositionen. Nach der Bestückung folgender Positionen bewirkt ein von der Schreibschutzlichtschranke erzeugtes Signal, daß der Antriebsmotor beim Einlegen einer Diskette ca. 6 Sekunden lang dreht. Dadurch ist ein besseres Zentrieren der Diskette gewährleistet, wenn die Laufwerksklappe innerhalb dieser Zeit geschlossen wird.

Position	Bauteil	Kommentar
UA2	NE555	Timer
R58	1.5k	Widerstand
R60	510k	Widerstand
C49	10uF/25V	Elko
C50	22nF/50V	Kondensator
C52	22nF/50V	Kondensator
CR19	1n4148	Diode
J3		geschlossen
J4		offen
J7		offen

Die Jumper J1, J2 und J5 sollten nicht nachträglich verändert werden, sie sind normalerweise geschlossen. Falls die Positionen UA3 und UC5 bestückt sind, sind J2 und J5 offen.

Der Jumper J6 paßt den Schreibstrom an den jeweiligen Laufwerkstyp an.

Laufwerk	ALPS	NEWTRONICS
J6	offen	geschlossen

Die gültigen Schaltunterlagen haben folgende Nummern:

251748 Rev.E (1541A, PCB-ASSY 250442, PCB-Nr.251777, UD4=9602)

251834 Rev.C (1541A-2, PCB-ASSY 250446, PCB-Nr.251830, UD4=74LS123)

TESTPROGRAMM FÜR FLOPPY 1540/41

MIT ALPS LAUFWERKEN

Mit C - 64

"970106.c	sfterr"	Schreib/Lese Dauertest + Geschwindigkeitstest + Stopkragen-Einstellung + Blinktest
"970127.a	alpadj"	Laufwerk Justage Alignment
"970150.a	fintst"	Ausdruck des sfterrtest
"970140.c	sfterr"	Schreib/Lese Dauertest + Geschwindigkeit
"970140.c15 sftary"		Schreib/Lese Dauertest(2Läufe) +Stopkragen Justage +Spur 1 Test
"Einstellprogramm"		Laufwerk-Justage Alignment

Mit VC - 20

"970141.a	sfterr"	Schreib/Lese Dauertest nur mit 16 K Erweiterung
"ary - 03"		Stopkragen Justage C 64 + VC 20
"f3 - 03"		Stopkragen Justage + LED Kontrolle + Schreib/Lesetest (Kompatibilität) nur mit 3K Erweiterung

1540 Drive Einstellung

Die Kopf-Einstellung für die VC-1540 Floppy wird in der gleichen Weise durchgeführt, wie die Einstellung der CBM 4040 Drives. Z.B.: Der Stepper wird positioniert auf die Alignmentspur (17) und der Kopf ist dann richtig justiert, wenn beide Amplituden gleich groß sind (cat eye's).

A. Die folgenden Teile werden benötigt:

- a. eine Commodore 2040-3040-4040 Alignment Diskette
- b. eine formatierte Diskette
- c. das VC-1540 Einstell Programm
- d. einen Kreuzschlitz- und einen Flach-Schraubenzieher
- e. ein 1-Strahl Oszilloscope mit externer Triggerung

B. Laden sie das VC-1540 Einstellprogramm

- C. 1. entfernen Sie die beiden Plastikschaalen des Gehäuses der Floppy
- 2. lösen Sie die Platine vom Metallgehäuse

D. Stellen Sie ihr Oszilloscope ein auf folgende Werte:

Kanal1
externe Triggerung
20mV/cm
20ms/cm

Messung mit dem Tastkopf an UH5 Pin1 oder 14. Externe Triggerung auf UC2 Pin 9

E. Starten Sie das Programm, so daß Sie die Befehlsübersicht erhalten. Legen Sie die Alignment-Diskette in die Floppy ein.

Befehlsübersicht:

- i - Eine Spur nach innen
- a - Eine Spur nach aussen
- b - Kopf fährt zum Anschlag und positioniert auf Spur 17 (Alignment Spur)
- h - Testet ob nach einem Spurwechsel der Kopf wieder exakt auf die Alignment Spur (17) zurück fährt. (Hysteresestep)
- e - Einstellung der Spur 1 auf 0.25mm Abstand des Stepermotors zum Anschlag
- t - Testet ob eine formatierte Diskette beschrieben und gelesen werden kann

F. Alignment Einstellung

Die Alignment Einstellung ist dann ok wenn nach bump sound und Hysteresestep die cat eye's eine kleinstmögliche Abweichung in der Amplitude (maximal 20%) voneinander aufweisen.

Ist dies nicht der Fall, so muß der Steppermotor verdreht werden, bis die Amplitudendifferenz im Toleranzbereich liegt. Um den Steppermotor zu bewegen lösen Sie die beiden Schrauben auf der Unterseite der Floppy. Sind die cat eye's nicht zu sehen, so muß der Steppermotor durch Eintippen von 'i' oder 'a' nach innen oder nach außen gedreht werden, um so die Alignment-Spur zu finden.

Durch Eintippen von 'b' (bump sound) wird erneut versucht, nach verfahren des Kopfes zum Endanschlag, die Alignment-Spur zu finden.

Durch Eintippen von 'h' (Hysterese) erfolgt ein Hysterese-Step.

Nach jedem dieser beiden Verfahren muß die Toleranz der Amplitude kleiner als 20% sein.

Nun schrauben Sie den Steppermotor wieder fest; danach muß die Einstellung ein weiteres Mal überprüft und gegebenenfalls korrigiert werden.

G. Endanschlag-Einstellung

Um den Endanschlag einzustellen drücken Sie die Taste 'e' (Endanschlag). Dann fährt der Kopf von Spur 17 auf Spur 1. Nun sollte zwischen dem Endanschlagswinkel und der Anschlagscheibe des Steppermotors 0.25mm Platz sein.

H. Motorgeschwindigkeitseinstellung

Auf der Unterseite der Floppy befindet sich eine Bohrung an der man das Potentiometer VR1 verdrehen kann um die Motorgeschwindigkeit einzustellen. Die richtige Drehzahl ist erreicht wenn man auf der Stroposkopescheibe ein stehendes Bild sieht.

I. Lese und Schreibtest

Legen Sie eine formatierte Diskette ein. Die Diskette wird neu formatiert und danach wird versucht auf jeder 2. Spur zu schreiben und zu lesen. Treten keine Fehler auf so ist die Floppy richtig eingestellt.

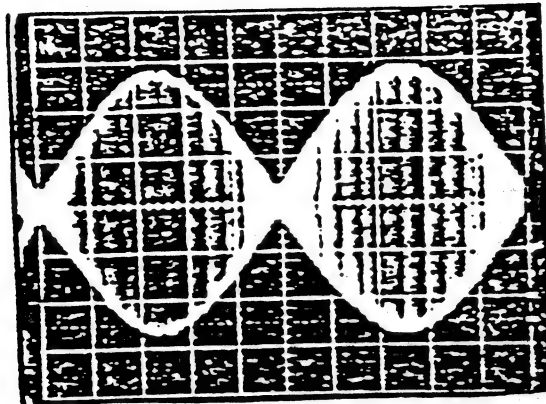
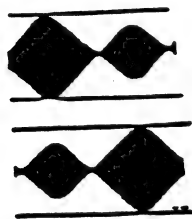


Bild 1 : Optimal eingestellte cat eye's

schlecht eingestelltes Laufwerk



muß nachjustiert werden

muß nachjustiert werden

gut eingestelltes Laufwerk



optimale Einstellung

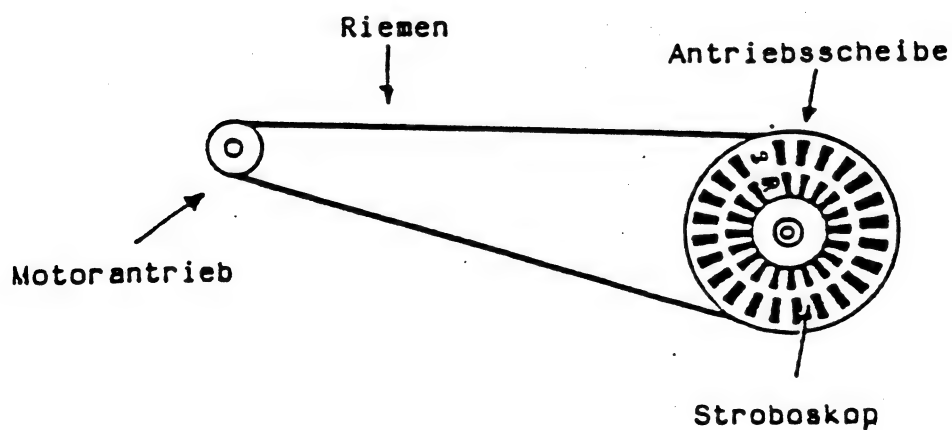


Bild 2 : Stroboskopescheibe und Antrieb

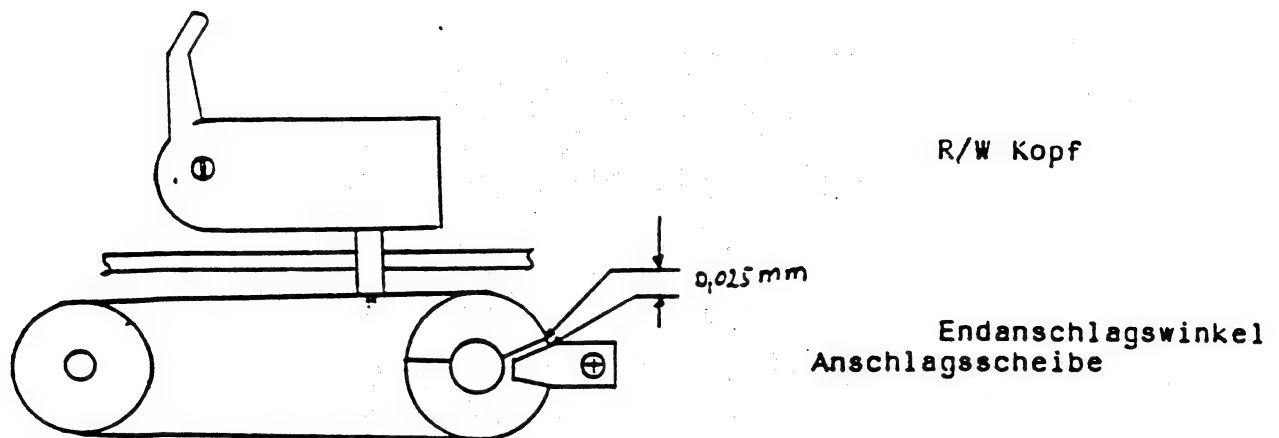
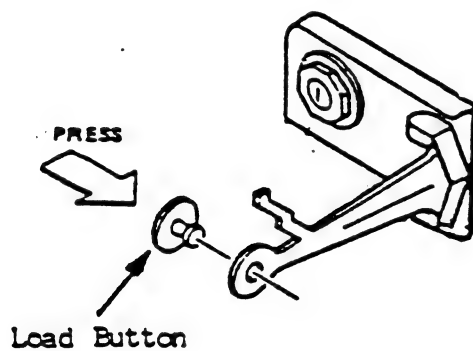
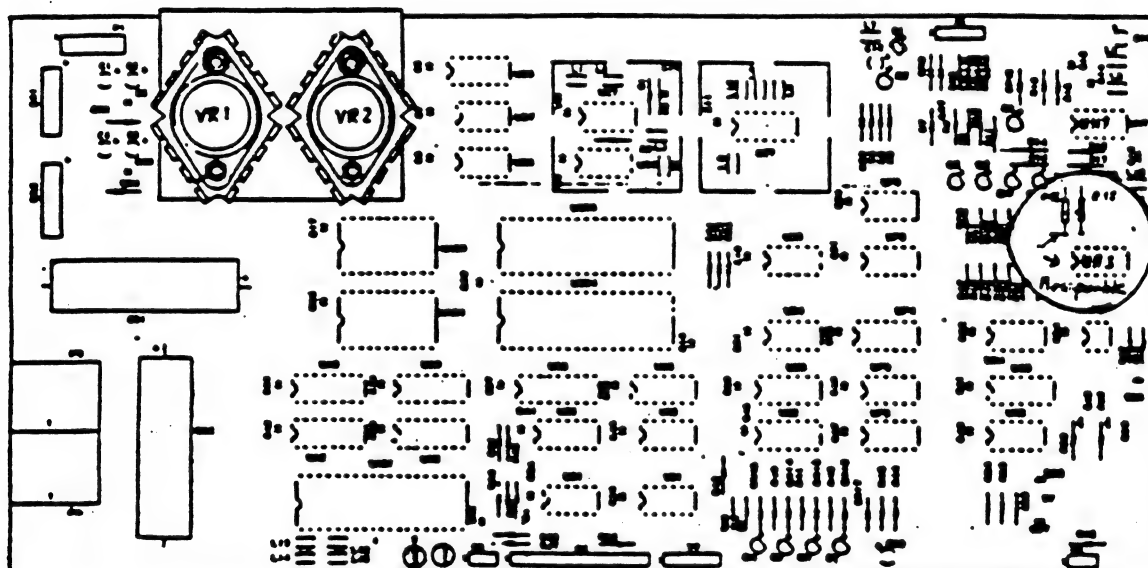
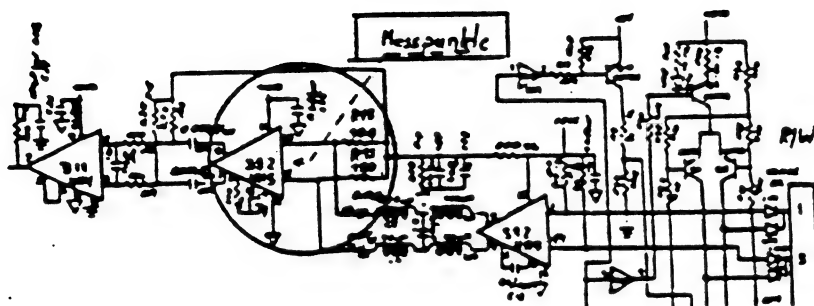


Bild 4: zu Punkt G

J. Austausch des Andruckfilzes

Bei Abnutzung oder Vibration (der Drive "singt") muß der Andruckfilz ausgetauscht werden. Mit der Zange wird die Halteklammer des Andruckfilzes zusammengedrückt und herausgezogen. Der neue Andruckfilz wird nur in die Halterung gedrückt.

K. Messpunkte für die Alignmenteinstellung

PART NO.	DESCRIPTION
340500-01	SHIPPING ASSY, 1541-II, USA NTSC
-02	, CND NTSC
-03	, GER PAL
340500-04	SHIPPING ASSY, 1541-II, UK PAL
-05	SHIPPING ASSY, 1541-II, FRENCH PAL

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
1A		ENGINEERING ADVANCE RELEASE	5-29-87	
A		PILOT PRODUCTION RELEASE	6-2-87	8-3/87
B		REVISED PER ECO 870330	10/22/87	12-8-87

1. SHEET **A** OF **4** SIZE **C**
 ASSY DWG

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commodore	TITLE: SHIPPING ASSY, 1541-II	DRAWN BY: 林松文	DATE 5-29-87	ENGR: 3.1.4/6	DATE 5-21-87	SIZE B	DRAWING NUMBER 340500
		CHKD:		APPR: 1/2	8-3/87		SHEET 1 OF 4

										ITEM	QTY	PART NUMBER	DESCRIPTION	DES	REV	NOTES							
										05 04 03 02 01													
										S S S S S	1	B	351409-02	CABLE 6P DIN		SUB. FOR ITEM 2							
										1 1 1 1 1	2	B	1540027-01	CABLE 6P DIN									
											3												
											4												
											5												
											6												
											7												
											8												
										0 0 0 0 1	9	D	252097-01	WARRANTY CARD, ENG									
										0 0 1 0 0	10		320046-06	WARRANTY CARD, GERM									
										1 0 0 0 0	11		325254-01	WARRANTY CARD, FRENCH									
										0 1 0 1 1	12	C	318772-01	READ THIS FIRST									
											13												
										0 0 0 0 0	14	B	354033-01	CASE MARK, 1541-II UL									
										0 0 0 0 0	15	B	-02	CSA									
										0 0 0 0 0	16	B	-03	VDE									
										0 0 0 0 0	17	B	354033-04	CASE MARK, 1541-II BSI									
											18												
											19												
										0 0 0 0 1	20	B	314075-02	SERVICE CENTER LIST									
											21												
										0 1 0 1 1	22	B	354139-01	USER MANUAL, ENG									
										0 0 1 0 0	23	B	354139-02	USER MANUAL, GER									
										1 0 0 0 0	24		354139-03	" " , FRENCH									
											25												
											26												
											27												
											28												
											29												
											30												
											31												
										1 1 1 1 1	32	B/D	354313-01	PACKING FOAM, TOP									
										1 1 1 1 1	33	B/D	354313-02	PACKING FOAM, BOTTOM									
											34												
										0 0 0 1 1	35	B	354452-01	GIFT BOX, 1541-II									
										1 1 1 0 0	36	B	354452-02	GIFT BOX, 1541-II									
											37												
											38												
commodore										TITLE		SHIPPING ASSY, 1541-II				DRAWN BY		DATE	ENGR	DATE	SIZE	DRAWING NUMBER	REV
																CHKD T C W.		16-11-86	APPR	1-4-87	B	340500	12

PART/DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES		
										05	04	03	02	01				
															39			
															40	B	354453-01	OUTER CARTON, 1541-II
															41			
															42			
															43			
															44	B	354502-14	POLY BAG 400x260x0.04
															45	B	4022044-02	POLY BAG 90x250x0.04
															46	B	251417-02	POLY BAG 200x300x0.04
															47			
															48			
															49			
															50			
															51			
															52			
															53		325249-01	UK PACK, WARRANTY SUPPLEMENT
															54			
															55			
															56			
															57			
															58	B	251171-03	DUMMY DISKETTE
															59	B	359800-08	DISKETTE DEMO C64
															60	B	359800-09	DISKETTE DEMO 1551/1541
															61	B	1540024-03	DISKETTE DEMO 1541
															62			
															63			
															64	B	340501-01	MAIN ASSY, 1541-II UL
															65	B	340501-02	MAIN ASSY, 1541-II CSA
															66	B	340501-03	MAIN ASSY, 1541-II VDE
															67	B	340501-04	MAIN ASSY, 1541-II BSI
															68			
															69			
															70			
															71	B	340031-01	POWER SUPPLY ASSY UL/CSA
															72	B	340031-02	POWER SUPPLY ASSY VCE
															73	B	340031-03	POWER SUPPLY ASSY BSI
															74			
															75			
															76			

commodore

TITLE

SHIPPING ASSY, 1541-II

DRAWN BY

CHKD J.S.W.

DATE

5-2-82

ENGR

APPR

DATE

8-2-82

SIZE

B

DRAWING NUMBER

340500

SHEET

3

OF

4

REV

B

PA. I NO.	DESCRIPTION
340501-01	MAIN ASSY, 1541-II, UL
-02	CSA
-03	VDE
340501-04	MAIN ASSY, 1541-II, BSI

LTR	ZONE	DESCRIPTION	DATE	APPROVED
1A		ENGINEERING ADVANCE RELEASE	5-29-87	
A		PILOT PRODUCTION RELEASE	6-3-87	8-3-87

1. SHEET OF SIZE

ASSY DWG

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commodore

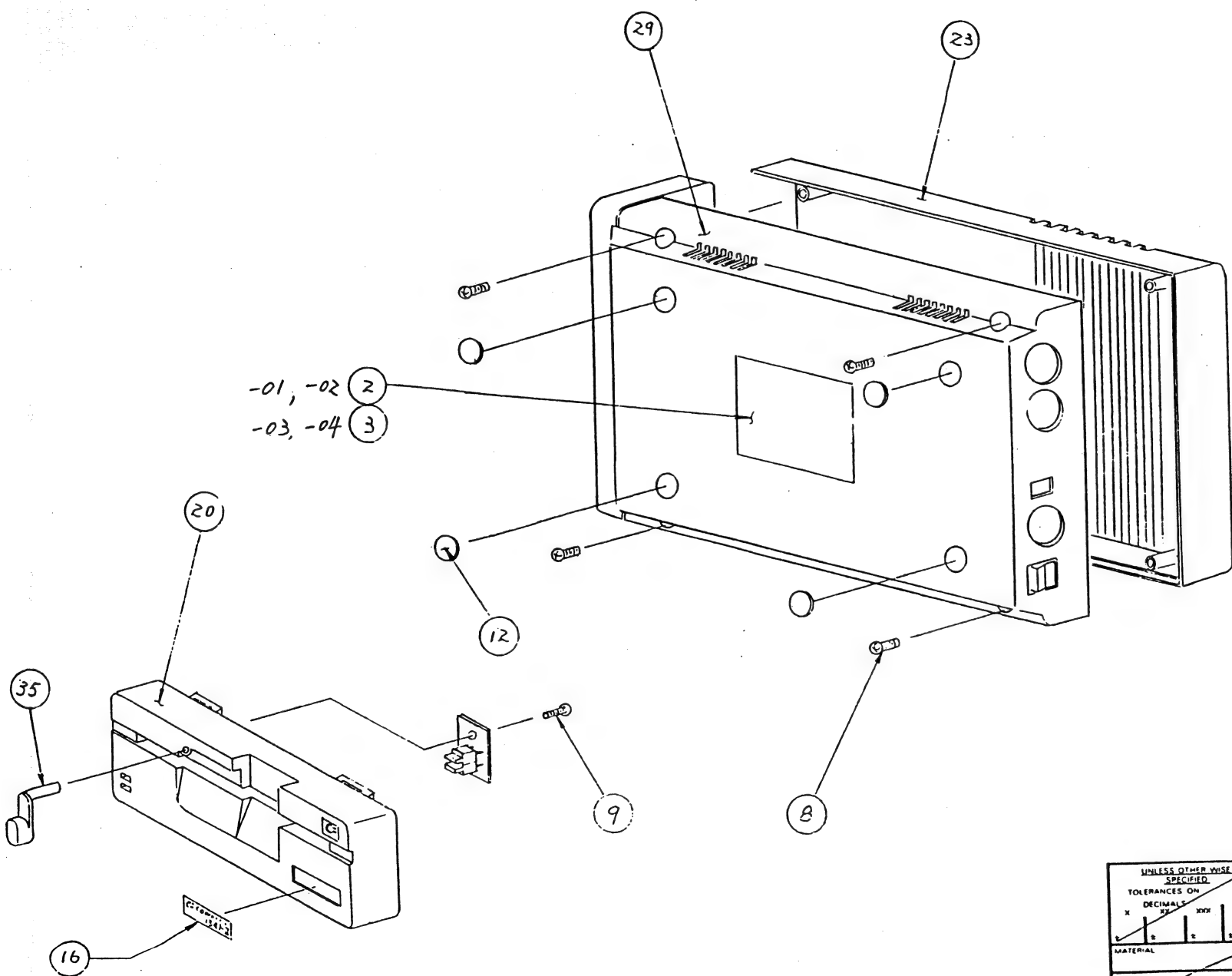
TITLE:

MAIN ASSY, 1541-II

DRAWN BY L. J. 2.	DATE 5-29-87	ENGR. J. J. 2.	DATE 8-21-87	SIZE B	DRAWING NUMBER 340501
CHKD:		APPR. J. J. 2.	DATE 8-3-87		SHEET 1 OF 3

QUANTITY REQD PER PART/DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES				
										04030201										
										1										
										2	B	354034-01	LABEL RATING, 1541-II UL/CSA							
										3	B	354034-02	LABEL RATING, 1541-II VDE/BSI							
										4										
										5										
										6										
										7										
										8	B	906883-04	SCREW TAPPING M3x10L			TOP/BOTTOM CASE				
										9	B	906883-01	SCREW TAPPING M3x8L			LED/BEZEL				
										10										
										11										
										12	B	950150-03	RUBBER FOOT							
										13										
										14										
										15										
										16	B	352604-01	NAME PLATE, 1541-II							
										17										
										18										
										19										
										20	B	353308-01	BEZEL, 1541-II (N)							
										21	B	353308-02	BEZEL, 1541-II (C)			SUB. FOR ITEM 20				
										22										
										23	B	353412-01	TOP CASE, 1541-II							
										24										
										25										
										26										
										27										
										28										
										29	B	340502-01	BASE ASSY, 1541-II							
										30	B	340502-02	BASE ASSY, 1541-II			SUB. FOR ITEM 29				
										31										
										32										
										33	B	353307-01	KNOB, 1541-II (N) Ø2.9			SUB. FOR ITEM 35, USED WITH 359901-02 FDD, 70000PCS ONLY.				
										34	B	353307-02	KNOB, 1541-II (C)			SUB. FOR ITEM 35, USED WITH 359902-01 FDD				
										35	B	353307-03	KNOB, 1541-II (N)			USED WITH 359901-01 FDD				
										36	B	353307-04	KNOB, 1541-II (N) Ø3.0			SUB. FOR ITEM 35, USED WITH 359901-02 FDD, 70000PCS ONLY.				
										37										
										38										
commodore										TITLE: MAIN ASSY 1541-II			DRAWN BY: 林松		DATE: 9-29-87	ENGR: 44	DATE: 8-31-87	SIZE: B	DRAWING NUMBER: 340501	REV: A
										CHKD: J. S. Wu			DATE: 6-11-87		APPR: fh		DATE: 8-31-87		SHEET 2 OF 3	

REVISIONS		DATE	APPROVED
LTR	DESCRIPTION		
	SEE PAGE 1	2-22-82	



UNLESS OTHERWISE SPECIFIED		DRAWN BY J. J. 102		DATE 2-2-82	
TOLERANCES ON DECIMALS		CHKD BY S. W. 11		3-1-82	
X 1/16 1/8 1/4 1/2 1		ENGR BY J. J.		11-21-82	
		APPR BY J. J.		2-21-82	
MATERIAL		USED ON 1541-II		NEXT ASSY	
FINISH					
commodore (TAMM)				MAIN ASSY	
				SIZE B 340501 A	
SCALE NONE				SHEET 3 OF 3	

PART NO.	DESCRIPTION
340502-01	BASE ASSY, 1541-II NENTRONICS
340502-02	BASE ASSY, 1541-II CHINON

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
1A		ENGINEERING ADVANCE RELEASE	5-29-87	
A		PILOT PRODUCTION RELEASE	6-2-87	1/2 S.V.H.

1. SHEET OF SIZE
 ASSY DWG
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commodore	TITLE: BASE ASSY, 1541-II	DRAWN BY 1A 5-2-87	DATE 5-2-87	ENGR: J. 4/66	DATE 5-21-87	SIZE B	DRAWING NUMBER 340502
		CHKD:		APPR: 1A	8-31-87		SHEET 1 OF 3

PART / DASH NO.										ITEM	QS	PART NUMBER	DESCRIPTION	REF DES	BEN	NOTES
									0201							
									01	1	E	340504-01	FDD ASSY , 1541-II (N)			
									10	2	B	340504-02	FDD ASSY , 1541-II (C)			
										3						
										4						
										5						
										6						
										7						
										8						
										9						
										10						
									44	11	B	906883-03	SCREW TAPPING , M3x6L			BRACKET / BOTTOM CASE
										12						
										13						
										14						
									33	15	B	906883-01	SCREW TAPPING , M3x8L			PCB / SHIELD / BOTTOM CASE
										16						
										17						
										18						
										19						
										20						
									11	21	D	353413-01	BOTTOM CASE , 1541-II			
										22						
										23						
										24						
										25						
									11	26	C	351607-01	SHIELD BOTTOM , 1541-II			
										27						
										28						
										29						
										30						
									11	31	B	340503-01	PCB ASSY , 1541-II			
										32						
										33						
										34						
										35						
										36						
										37						
										38						

commodore

TITLE: BASE ASSY , 1541-II

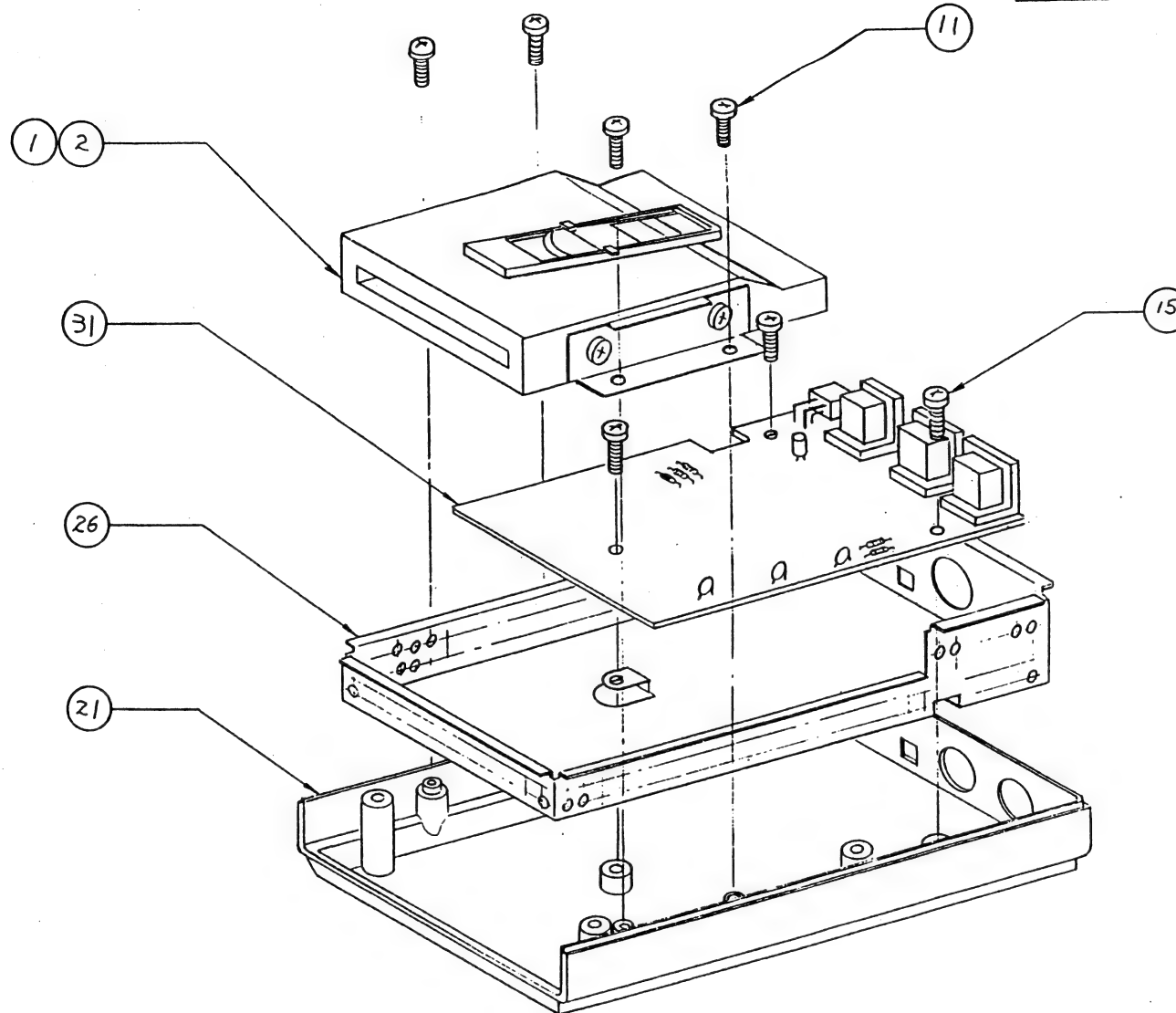
DRAWN BY: *[Signature]* DATE: 3-1-87
 CHKD J. S. W. 16-12-87

ENGR: *[Signature]* DATE: 3-31-87
 APPR: *[Signature]* 2-31-87

SIZE: B
 DRAWING NUMBER: 340502
 SHEET 2 OF 3

REV: A

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
	SEE PAGE 1	7-22-77	#8-47



UNLESS OTHERWISE SPECIFIED		DRAWN BY 林鈴玉		DATE 7-22-77	
TOLERANCES ON DECIMALS		CHECKED C. W. L.		ENGR C. W. L.	
X .001 XXX .005		APPR J. L.		7-22-77	
MATERIAL		USED ON 1541-II		NEXT ASSY	
FINISH					
commodore (TAYMAN)				BASE ASS'Y	
SIZE B		340502		REV A	
SCALE NONE		SHEET 3		OF 3	

PART NO.	DESCRIPTION
340503-01	PCB ASS'Y , 1541-II

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PILOT PRODUCTION RELEASE	6-3-87	11/8-31/87

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1. SHEET OF SIZE
 ASSY DWG
 NOTES-UNLESS OTHERWISE SPECIFIED :

commodore	TITLE : PCB ASS'Y , 1541-II	DRAWN BY : 31 8/2 2	DATE : 6-3-87	ENGR : J. J. E. 6.	DATE : 8-31-87	SIZE : B	DRAWING NUMBER : 340503
		CHKD : 11		APPR : 11/2	8-31/87		SHEET 1 OF 5

PAR. / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BENC	NOTES					
									01												
										1											
										2											
									1	3	B	251065-04	HEADER 4 PIN	CN2							
									1	4	B	325562-05	HEADER 5 PIN	CN4							
									1	5	B	325562-06	HEADER 6 PIN	CN3							
									S	6	B	325562-07	HEADER 7 PIN	CN4		SUB. FOR ITEM 4, USED WITH 359701-02 FCG. 70000PCS ONLY					
									REF	7	C	355207-01	SCHEMATIC, 1541-II								
									REF	8		355208-01	ARTWORK, 1541-II								
										9											
										10											
									1	11		355124-01	PCB FABRICATION								
										12											
									1	13	A	900556-02	CRYSTAL 16MHZ	Y1							
									S	14	B	900557-01	CRYSTAL 16MHZ	Y1		SUB. FOR ITEM 13					
										15											
									1	16	B	901521-17	IC, 74LS42 DEC.	U2							
									1	17	B	901521-32	IC, 74LS86 2-EX-OR	U11							
									1	18	B	901521-02	IC, 74LS04 INV.	U9							
									1	19	B	901521-03	IC, 74LS08	U1							
									1	20	B	901522-06	IC, 7406	U7							
									1	21	B	901435-01	IC, MPS6502 CPU	U3							
									2	22	B	901437-01	IC, MPS6522 VIA	U6, 8							
									1	23	B	251968-03	IC, DOS ROM	U4							
									1	24	B	325502-03	TMM2016P 2K S-RAM (150NS)	U5							
									1	25	B	251828-01	IC, 64H156 GATE ARRAY	U10							
									S	26	B	251828-02	IC, GATE ARRAY	U10		SUB. FOR ITEM 25					
									1	27	B	251871-01	IC, MPA2003C	U13							
									1	28	B	252308-01	IC, FDD R/W AMP. (CX20185)	U12							
									S	29	B	252308-02	IC, FDD R/W AMP. (MC2871P)	U12		SUB. FOR ITEM 28					
										30											
									1	31	B	355810-01	LED RED 1x5mm	LED1							
									1	32	B	355810-02	LED GREEN 1x5mm	LED2							
										33											
									6	34	B	901550-01	RESISTOR 5% 1/4W 1K	R4, 12, 21, 23, 31, 32							
									2	35	B	901550-89	RESISTOR 5% 1/4W 150	R5, 41		R41 USED WITH 359901-02 FDD, 70000PCS ONLY					
									3	36	B	901550-69	RESISTOR 5% 1/4W 1.5K	R8, 9, 30							
									1	37	B	901550-53	RESISTOR 5% 1/4W 2K	R3							
									1	38	B	901550-52	RESISTOR 5% 1/4W 220	R1							
commodore										TITLE: PCB ASS'Y, 1541-II			DRAWN BY: 林松云		DATE: 6-3-87	ENGR: 10	DATE: 8-31-87	SIZE: B	DRAWING NUMBER: 340503		REV: A
										CHKD: S.C. Huang		DATE: 8-31-87	APPR: 17		DATE: 8-31-87	SHEET 2 OF 5					

QUANTITY REQD PER PART/DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES				
										39										
										40										
									1	41	B	901550-29	RESISTOR 5% 1/4W 240	R15						
									1	42	B	901550-85	RESISTOR 5% 1/4W 2.4K	R37						
										43										
									1	44	B	901550-14	RESISTOR 5% 1/4W 330	R7						
										45										
									1	46	B	901550-39	RESISTOR 5% 1/4W 3.9K	R14						
									1	47		-21	39K	R28						
									9	48		-19	4.7K	R2,6,11,13,16,17,19,20,26						
									1	49		-22	47K	R10						
									1	50		-30	560	R29						
									2	51	B	901550-40	RESISTOR 5% 1/4W 620	R18,22						
									1	52	B	901550-58	RESISTOR 5% 1/4W 470	R42						
										53										
										54										
									2	55	A	251071-14	CAP. RADIL CER. 50V 10% SL 22P	C11,12						
									2	56	B	900010-25	50V 25u 1000P	C20,27						
									1	57	A	251069-10	50V 10% YSP 1500P	C21						
									S	58	B	900010-61	25V 25U 0.1u	C1,2,4~10,13~19,24~26,28	SUB. FOR ITEM 59					
									20	59	B	252036-02	CAP. RADIL CER. 16V 25V 0.1u	C1,2,4~10,13~19,24~26,28						
										60										
										61										
									3	62	A	900100-01	ELEC. CAP. 25V 10u	C3,22,23						
										63										
										64										
									1	65	A	903025-01	FERRITE BEADS	F85						
										66										
									1	67	B	252369-37	CHOKE 330uH	L1						
										68										
									1	69	B	252182-01	SWITCH ROCKER	SW1						
									1	70	B	252144-02	SWITCH DIP 2POS	SW2						
										71										
									1	72	A	904150-05	IC, SOCKET LOW PRD 28PIN	U4						
										73										
									1	74	B	359004-01	CONNECTOR 4P DIN	CN7						
									S	75	A	903361-02	CONNECTOR 6P DIN	CN5,6		SUB. FOR ITEM 76				
									2	76	A	903361-03	CONNECTOR 6P DIN	CN5,6						
commodore										TITLE: PCB ASS'Y, 1541-II			DRAWN BY: S.C. Huang		DATE: 8-31-87	ENGR: [Signature]	DATE: 8-31-87	SIZE: B	DRAWING NUMBER: 340503	REV: A
													CHKD: S.C. Huang		DATE: 8-31-87	APPR: [Signature]	DATE: 8-31-87	SHEET: 3	OF: 5	

PART / DASH NO.												ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BENT	NOTES
												01						
												77						
												78						
												79						
												1	80	B	200019-17	LEAD WIRE AWG24 220 ^{mm} BLK	W3	
												1	81	B	200017-15	LEAD WIRE AWG24 220 ^{mm} RED	W1	
												1	82	B	200019-18	LEAD WIRE AWG24 220 ^{mm} WHT	W2	
												1	83	B	200018-13	JUMPER 17Km/27mm	FIXED Y1	
												84						
												85						
												86						
												S	87	B	324746-03	IC EP-ROM 27128	U4	SUB. FOR ITEM 23
												S	88	B	355640-02	IC EP-ROM 27128	U4	SUB. FOR ITEM 23
												1	89	B	901521-30	IC, 74LS14 SH.WV	U14	
												90						
												91						
												92						
												93						
												94						
												95						
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												111						
												112						
												113						
												114						

commodore

TITLE		PCB ASSY , 1541-II		DRAWN BY *林 裕 人		DATE 6-4-87		ENGR: J. 100		DATE 8-31-87		SIZE B		DRAWING NUMBER 340503		REV A	
				CHKD S.C. Hwang		8-31-87		APPR: J. 100		8-5-87				SHEET 4 OF 5			

[illegible]

PART NO.	DESCRIPTION
340504-01	DISK DRIVE ASSY, 1541-II (N)
340504-02	DISK DRIVE ASSY, 1541-II (C)

LTR	ZONE	DESCRIPTION	DATE	APPROVED
1X		ENGINEERING ADVANCE RELEASE	5-29-87	
A		PILOT PRODUCTION RELEASE	6-2-87	11/8-3/87

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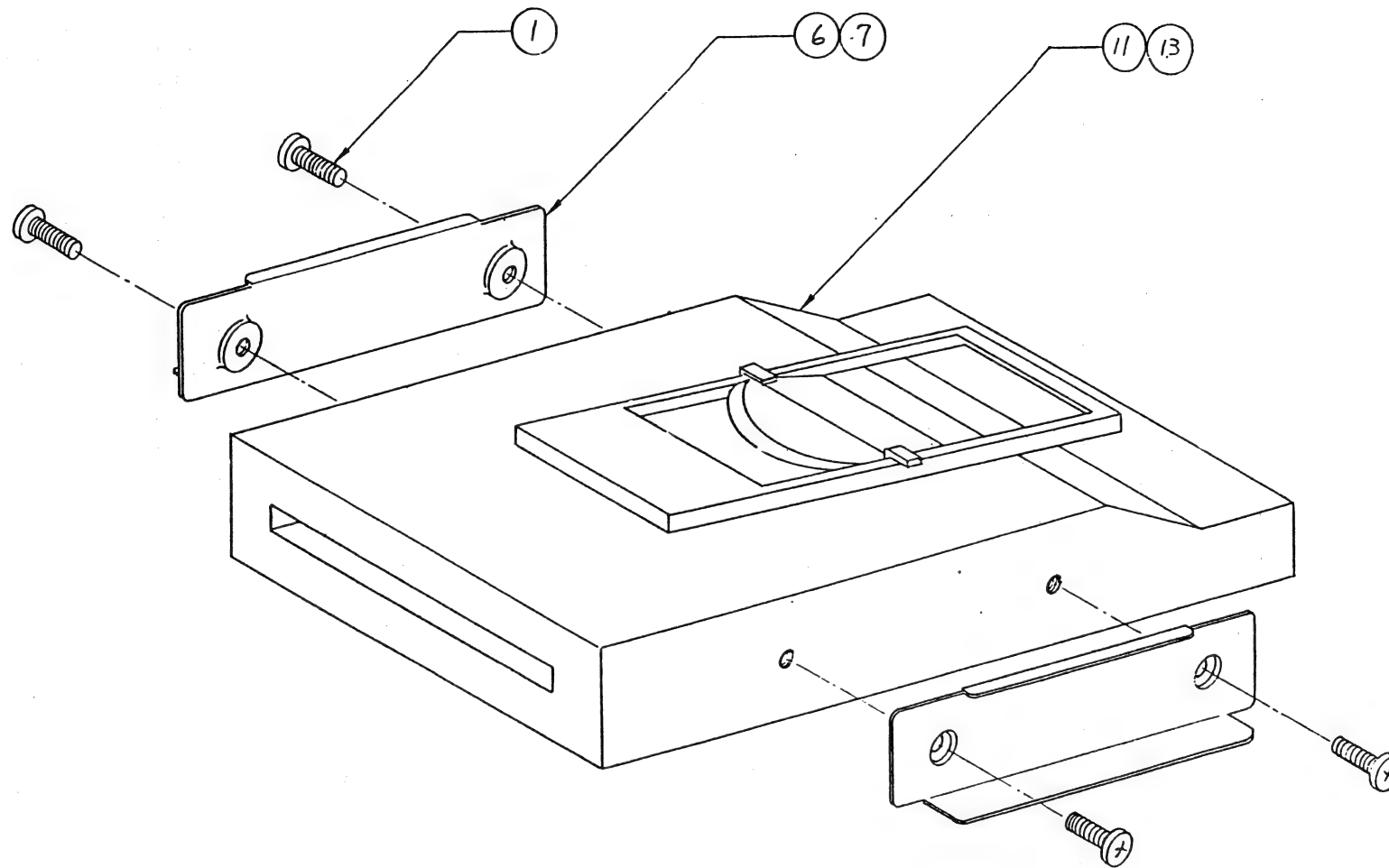
1. SHEET OF SIZE
 ASSY DWG

NOTES-UNLESS OTHERWISE SPECIFIED:

commodore	TITLE: DISK DRIVE ASSY, 1541-II	DRAWN BY: J. N. J.	DATE: 5-29-87	ENGR: S. J. G.	DATE: 5-29-87	SIZE: B	DRAWING NUMBER: 340504
		CHKD:		APPR: J. N. J.	DATE: 6-2-87		SHEET 1 OF 3

REV. ORIGIN										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEZ	NOTES						
									02	01												
									4	4	1	B	906800-03	SCREW MACHINE M3x8L		BRACKET/MECHANISM						
									0	S	2	B	906610-03	SCREW MACHINE #6-32		SUB. FOR ITEM 1, USED ON 359901-02 ONLY						
											3											
											4											
											5											
									0	2	6	B	351523-01	FDD BRACKET, 1541-II		USED ON NEWTRONICS						
									2	0	7	B	351523-02	FDD BRACKET, 1541-II		USED ON CHINON						
											8											
											9											
											10											
									0	1	11		359901-01	FLOPPY DISK MECHANISM		NEWTRONICS D500						
									0	S	12		359901-02	FLOPPY DISK MECHANISM		REWORK TYPE, 70000 PCS ONLY						
									1	0	13		359902-01	FLOPPY DISK MECHANISM		CHINON FZ-501						
											14											
											15											
											16											
											17											
											18											
											19											
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											32											
											33											
											34											
											35											
											36											
											37											
											38											
commodore												TITLE: DISK DRIVE ASSY, 1541-II		DRAWN BY: 林金		DATE: 6-2-87	ENGR: 林金	DATE: 8-31-87	SIZE: B	DRAWING NUMBER: 340504		REV: A
												CHKD: J.S.W.		DATE: 6-12-87	APPR: T.D.	DATE: 8-31-87	SHEET 2 OF 3					

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
	SEE PAGE 1	5-22-8	<i>[Signature]</i>



UNLESS OTHERWISE SPECIFIED		DRAWN <i>[Signature]</i>		DATE 5-27-8		commodore (TAMM)	
TOLERANCES ON DECIMALS		CHKD <i>[Signature]</i>		2-22-8			
INches		ENGR <i>[Signature]</i>		1-31-8			
FRACTIONS		APPR <i>[Signature]</i>		11			
MATERIAL		USED ON 1541-II		NEXT ASSY			
FINISH							
DISK DRIVE ASSY						SIZE B 340504 REV A	
SCALE NONE						SHEET 3 of 3	

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	PILOT PRODUCTION RELEASE	5/17/87	72-789
B	REVISED PER ECO 870 330	10/26/87	11-Buck

SHIPPING ASS'Y
1541-II
340500

359800-09 DISKETTE DEMO
1540027-01 CABLE 6P DIN
354453-01 OUTER CARTON
252097-01 WARRANTY CARD
314075-02 SERVICE CENTER LIST
354139 USER MANUAL
354313 PACKING FOAM
354452 GIFT BOX
340031 POWER SUPPLY

MAIN ASS'Y
1541-II
340501

352604-01 NAME PLATE
353307 KNOB
353308 BEZEL
354034 LABEL RATING
353412-01 TOP CASE
950150-03 RUBBER FOOT

BASE ASS'Y
1541-II
340502

351607-01 SHIELD BOTTOM
353413-01 BOTTOM CASE

DISK DRIVE ASS'Y
1541-II
340504

351523 FDD BRACKET
359901-01 FLOPPY DISK MECHANISM

PCB ASS'Y
1541-II
340503

355207-01 SCHEMATIC
355208-01 ARTWORK
355124-01 PCB FAB
355810 LED

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UNLESS OTHER WISE SPECIFIED		DATE		Commodore	
TOLERANCES ON		DRAWN BY		DATE	
IN		11/22/87		11/22/87	
DECIMALS		CHECKED BY		DATE	
IN		11/22/87		11/22/87	
IN		ENGR		DATE	
IN		11/22/87		11/22/87	
MATERIAL		APPR		DATE	
FINISH		11/22/87		11/22/87	
USED ON		1541-II		PART ASSY	
SCALE		NONE		SHEET 1 OF 1	

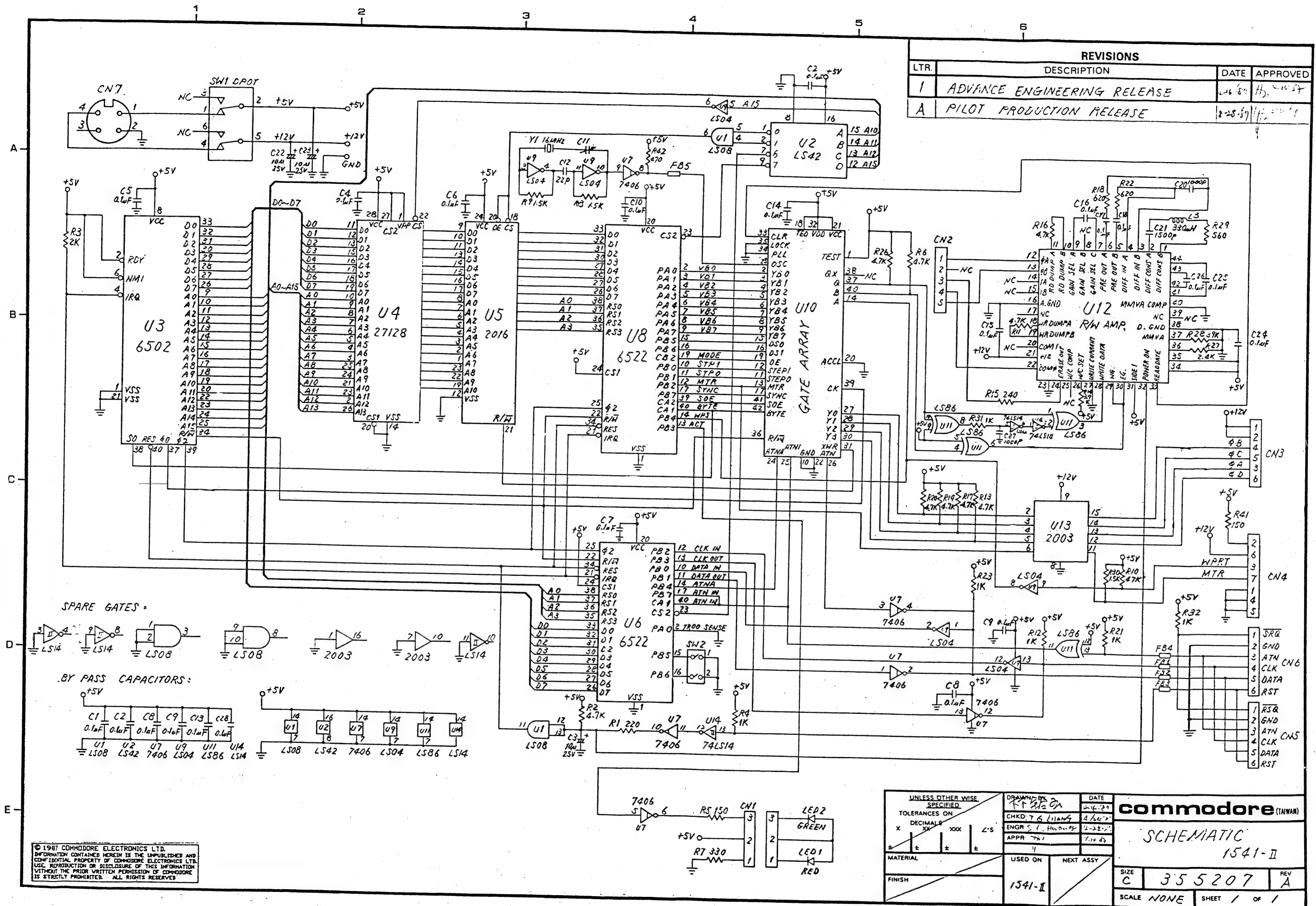
DRAWING TREE

SIZE A 350005 B

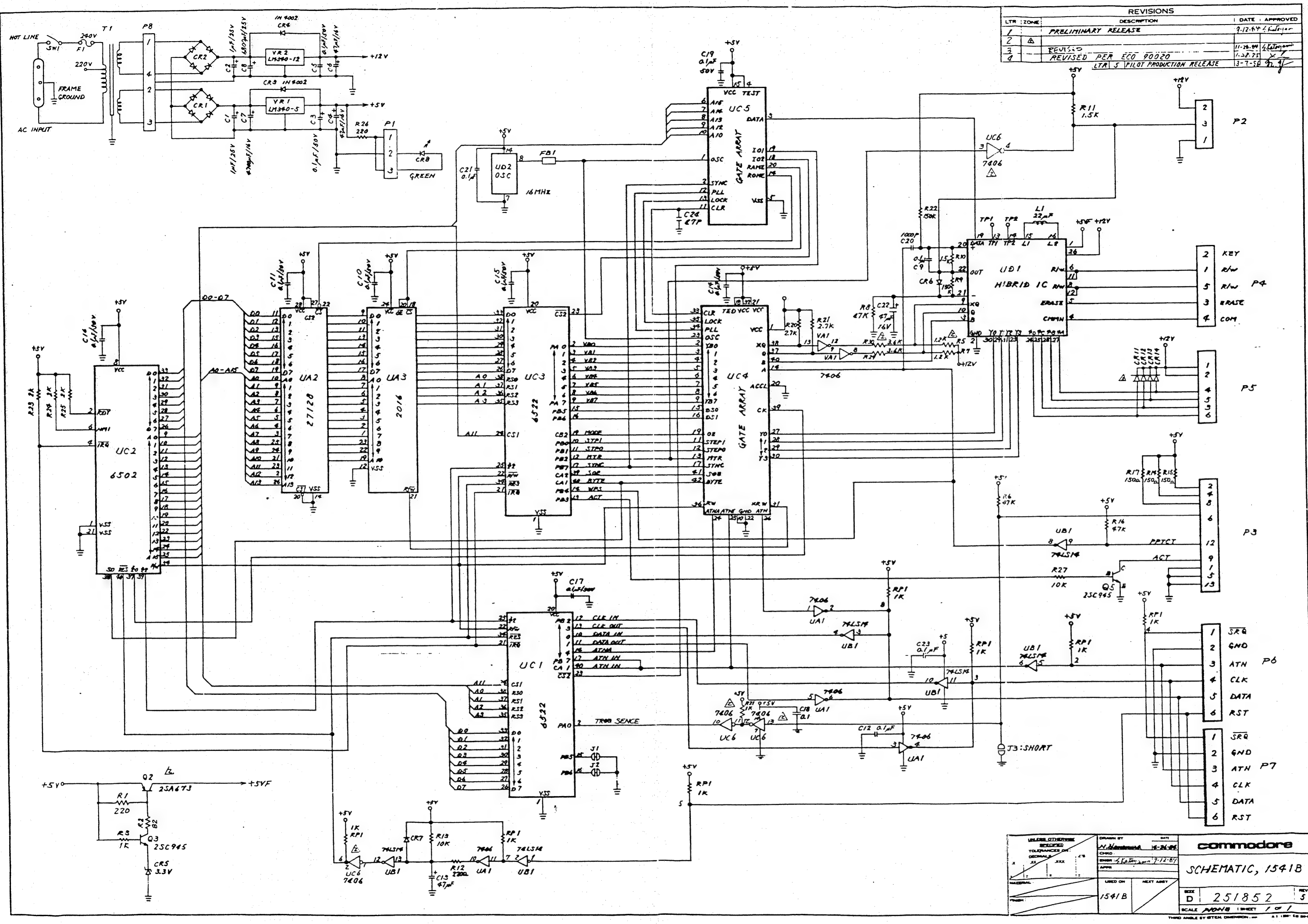
COMMODORE

1541 II

ENGLISCH



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REVISIONS			
LTR	ZONE	DESCRIPTION	DATE
1		PRELIMINARY RELEASE	7-12-87
2			
3		REVISED PER ECO 90020	11-28-87
4		REVISED PER ECO 90020	1-28-88
5		REVISED PER ECO 90020	3-7-88

UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE:
RESISTORS: 1%
CAPACITORS: 5%
DIMENSIONS: 0.125"

DESIGNED BY: J. J. HARRIS
CHECKED BY: J. J. HARRIS
DATE: 7-12-87
APP'D: J. J. HARRIS

USED ON: 1541B
NEXT ASSEMBLY: 1541B

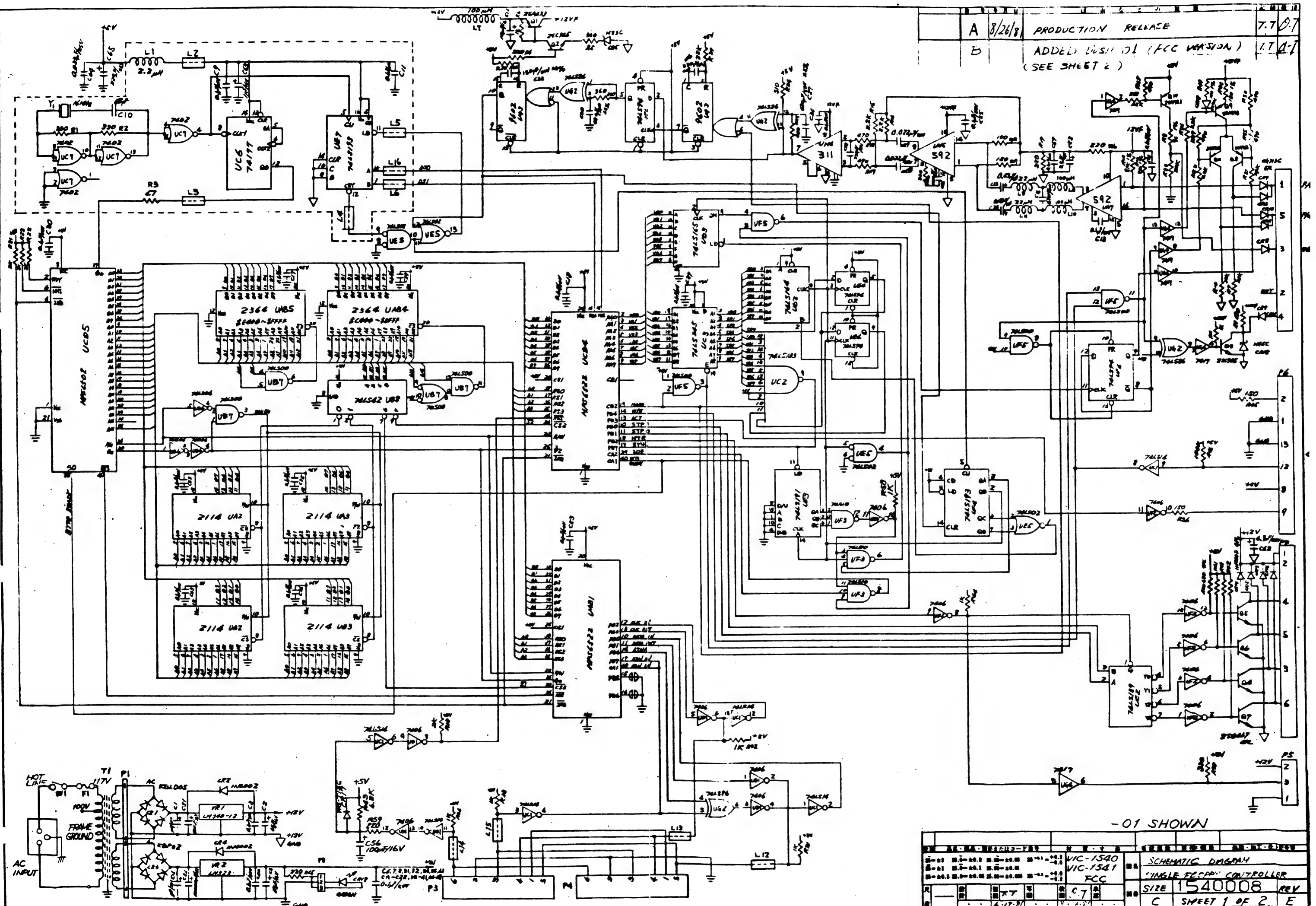
commodore

SCHEMATIC, 1541B

REV 5

251852

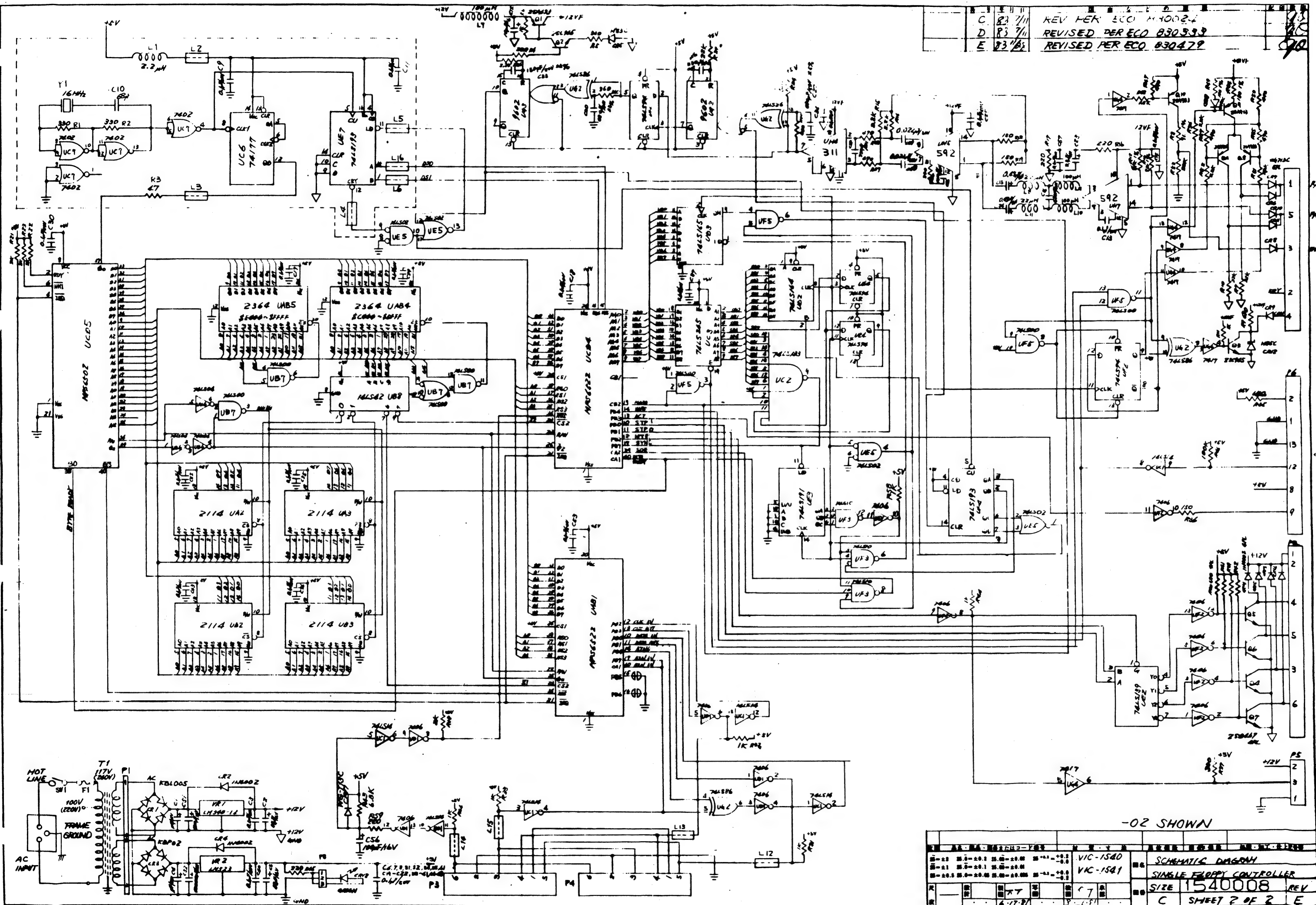
SCALE: NONE 1 SHEET 1 OF 1



A	8/26/8	PRODUCTION RELEASE	7.7	0.7
B		ADDED DASH 01 (FCC VERSION)	1.7	1.1
		(SEE SHEET 2)		

-01 SHOWN

VIC-1540				Schematic Diagram			
VIC-1541				SINGLE RECORD CONTROLLER			
FCC				SIZE 1540008			
REV				C SHEET 1 OF 2 E			



C	83 7/11	REV PER ECO 1140024
D	83 7/11	REVISED PER ECO 830333
E	83 7/11	REVISED PER ECO 830479

VIC-1540		VIC-1541	
SHEET 2 OF 2		SHEET 2 OF 2	
REV 1		REV 1	
REV 2		REV 2	
REV 3		REV 3	
REV 4		REV 4	
REV 5		REV 5	
REV 6		REV 6	
REV 7		REV 7	
REV 8		REV 8	
REV 9		REV 9	
REV 10		REV 10	
REV 11		REV 11	
REV 12		REV 12	
REV 13		REV 13	
REV 14		REV 14	
REV 15		REV 15	
REV 16		REV 16	
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REV 91		REV 91	
REV 92		REV 92	
REV 93		REV 93	
REV 94		REV 94	
REV 95		REV 95	
REV 96		REV 96	
REV 97		REV 97	
REV 98		REV 98	
REV 99		REV 99	
REV 100		REV 100	

PART NO.	DESCRIPTION
1540048-01	FCC (UL) PCB ASSY. VIC-1541. USED LOGIC ARRAY.
1540048-02	PCB ASSY. VIC-1541. USED LOGIC ARRAY.

[Fold Here]

DWG. NO.
 1540048

TITLE: PCB ASSY. VIC-1541.

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	12/18/82	T. MATSUMOTO
B		REVISED PER ECO-830085	2/28/83	J. Okada
C		REVISED PER ECO 830125	3/25/83	J. Okada

1. SHEET 7 & 8 OF 8 ARE B-SIZE
 ASSY DWG
 NOTES-UNLESS OTHERWISE SPECIFIED:

VC-1541

commodore	DRAWN BY:	T. Tokuda	DATE	11/16/82	ENGR:	T. MATSUMOTO	12/17/82	SIZE B	SHEET 1 OF 8
	CHKD:				APPR:	T. MATSUMOTO	12/18/82		

QUANTITY REQD PER PART / DASH NO.														ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
													0201	1	B	1540050	PC BOARD 238 x155 x1.6t			GLASS EPOXY. G-10
														2						
														3						
														4						
													REF	5	C	1540049-01	SCHEMATIC DIAGRAM			USED LOGIC ARRAY. FCC (UL)
													REF	6	C	1540049-02	SCHEMATIC DIAGRAM			USED LOGIC ARRAY.
														7						
														8						
														9						
														10						
														11						
													1	12	B	901435-01	IC MPS 6502 CPU	UC4		
													2	13		901437-01	MPS 6522 VIA	UC2, UC3		
													1	14		901229-03	2364-197 ROM	UB4		\$E000 ~ \$FFFF
													1	15		325302-01	2364-130 ROM	UB3		\$C000 ~ \$DFFF
													1	16		325572-01	LOGIC ARRAY 40 PIN DIP	UC1		
													1	17		901521-01	74LS00 2-NAND	UC6		
													1	18		901521-17	74LS42 DEC.	UC7		
													1	19		901522-01	7417 BUFFER	UD2		
													1	20		901521-32	74LS86 2-EX-OR	UD3		
													2	21		901522-06	7406 INV. BUF.	UB1, UD1		
													1	22		901521-02	74LS04 INV.	UC5		
													1	23		901521-30	74LS14 SCH. INV.	UA1		
													1	24		901521-26	74LS193 4BIT. COU.	UE6		
													1	25		901521-54	74LS197	UD5		
													S	26		901522-03	74177	UD5		SUBSTITUTE FOR ITEM 25.
													1	27		901510-01	9602	UD4		
													1	28		901523-04	LM311	UE4		
													2	29	B	901523-08	IC NE592	UF3, UF4		
													1	30	B	325502-03	IC TMM2016P RAM	UB2		
													S	31	B	325502-01	IC M58725P RAM	UB2		SUBSTITUTE FOR ITEM 30.
													S	32	B	901522-30	IC 7407	UD2		SUBSTITUTE FOR ITEM 19.
														33						
														34						
														35						
														36						
														37						

commodore

TITLE:
PCB ASSY. VIC-1541

DRWN BY:
T. Tokuda
CHKD:

DATE
11/16/82

ENGR: 7/0
APPR: T.M

DATE
12/17
12/18

SIZE
B

1540048

REV
C

SHT
2/8

QUANTITY REQD PER PART / DASH NO.													ITEM	Q	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
													0201						
													22	38	B	902671	TRANSISTOR NPN 2SC945	Q2, Q7	
													S S	39		902693-01	2SC1815	Q2, Q7	SUBSTITUTE FOR ITEM 38.
													44	40		902679	2SD467	Q8 - Q11	
													S S	41		902682	NPN 2SC2120	Q8 - Q11	SUBSTITUTE FOR ITEM 40.
													11	42		902720	PNP 2SA673	Q1	
													44	43		902717	2SA733	Q3 - Q6	
													S S	44	B	902744-01	TRANSISTOR PNP 2SA1015	Q3 - Q6	SUBSTITUTE FOR ITEM 43.
														45					
														46					
														47					
														48					
														49					
														50					
														51					
													66	52	B	900750-02	DIODE, RECTIFIER IN4002	CR2,4,8-11	
													88	53		900850-05	SIGNAL WG713C	CR6,7,12,14-18	
													S S	54		900850-01	SIGNAL IN4148	CR6,7,12,14-18	SUBSTITUTE FOR ITEM 53.
													11	55		325505-01	ZENER 3.3V 500mW ±5%	CR5	HZ3C-2
													S S	56		325505-02	3.3V 500mW ±5%	CR5	HZ4A-1 SUB. FOR ITEM 55.
													S S	57		900948-06	3.3V 500mW ±5%	CR5	IN5226B SUB. FOR ITEM 55.
													11	58		325506-01	5.1V 500mW ±5%	CR13	HZ5C-2
													S S	59		900948-11	ZENER 5.1V 500mW ±5%	CR13	IN5231 SUB. FOR ITEM 58.
													22	60	B	900756-01	DIODE BRIDGE 1.5A 50V	CR1, CR3	KBP-005
														61					
														62					
														63					
													11	64	B	325566-01	CRYSTAL MODULE 16 MHz 50PPM	Y1	
													S S	65	B	325566-02	CRYSTAL MODULE 16 MHz 100PPM	Y1	SUBSTITUTE FOR ITEM 64.
														66					
														67					
														68					
													11	69	B	325513-01	COIL, INDUCTOR 2.2 μH	L1	
													22	70	B	325513-02	COIL, INDUCTOR 22 μH	L9, L10	
													33	71	B	325513-03	COIL, INDUCTOR 100 μH	L8, L11, L12	
														72					
														73					
														74					

commodore

TITLE:
PCB ASSY. VIC-154.1

DRWN BY:
T. Tokuda
CHKD:

DATE
11/16/82

ENGR: *YO*
APPR: *T.M*

DATE
12/17
12/18

SIZE
B

1540048

REV
C

SHT.
3/8

QUANTITY REQD PER PART / DASH NO.													ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES	
										02	01		75	B	901528-04	VOLTAGE REGULATOR 12V, 1.5A	VR 1		LM340-12	T0-3
													76	B	901528-03	VOLTAGE REGULATOR 5V, 1.2A	VR 2		LM340-5	T0-3
													77							
													78							
													79	B	904914	INSULATION MYLAR T0-3				
													80	B	325551-01	INSULATION SILICONE T0-3			SUBSTITUTE FOR ITEM 79.	
													81							
													82							
													83	B	903361	CONNECTOR, DIN 6P	P2, P3			
													84							
													85							
													86							
													87	B	904150-06	SOCKET IC LOW PRO 40 PIN				
													88	B	904150-03	SOCKET IC LOW PRO 24 PIN				
													89							
													90							
													91							
													92							
													93							
													94							
													95							
													96	B	251065-04	HEADER ASSY. 2.5 PITCH 4 PIN	P8		MOLEX 5048-04 AG	
													97		325562-06	6 PIN	P7		3022-06A	
													98		325562-15	15 PIN	P6		3022-15A	
													99		325562-03	2.5 PITCH 3 PIN	P4, P5		3022-03A	
													100	B	903316-04	HEADER ASSY. 3.96 PITCH 4 PIN	P1		MOLEX 5271-04A	
													101							
													102							
													103							
													104							
													105							
													106							
													107							
													108							
													109							
													110							
													111							

commodore

TITLE:
PCB ASSY. VIC-1541

DRWN BY:
T. T. kudala
CHKD:

DATE
10/6/82

ENGR: *TH*
APPR: *TM*

DATE
12/17
12/18

SIZE
B

1540048

REV
C

SHT
4/8

QUANTITY REQD PER PART / DASH NO.													ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES																				
												OZ 01																											
													1	112	B	900301-04	CAPACITOR ELECT.	220μF/10V	C13																				
													1	113		900101-45		6800μF/25V	C17																				
													1	114		900101-32		4700μF/16V	C16																				
													2	115		900100-33		47μF/16V	C2,C5																				
													2	116		900100-32	ELECT.	1μF/25V	C1,C4																				
													1	117		900402-15	TANTALIUM	10μF/25V	C15																				
													1	118		900402-11	TANTALIUM	3.3μF/25V	C44																				
													1	119		900010-52	CERAMIC	150pF/50V	C31		±5%																		
													2	120		-53		330pF/50V	C32,C36		±5%																		
													3	121		-54		680pF/50V	C45,C33,C34		±5%																		
													1	122		-25		1000pF/50V	C41																				
													24	123		-20		0.1μF/50V	C3,6-10		14,18,19,20,22-30,35,40,43,47,48																		
													2	124		900010-14	CERAMIC	0.022μF/50V	C39,C42																				
													1	125		900100-40	ELECT.	100μF/16V	C46																				
													2	126		900402-17	TANTALIUM	0.47μF/25V	C37,C38																				
													1	127		-08		4.7μF/25V	C21																				
													1	128		900402-14	TANTALIUM	1μF/16V	C11																				
													1	129	B	900465-02	CAPACITOR CERAMIC	0.033μF/25V	C12																				
														130																									
														131																									
														132																									
														133																									
													1	134	B	901550-56	RESISTOR CARBON 1/4W±5%	47Ω	R1																				
													2	135	B	901550-108	RESISTOR CARBON 1/4W±5%	360Ω	R14,R24																				
													4	136		-89		150Ω	R17,18,45,46																				
													4	137		-52		220Ω	R4,16,36,55																				
													2	138		-14		330Ω	R3,R23																				
													6	139		-58		470Ω	R20,22,30,37,38		41																		
													1	140		-38		510Ω	R27																				
													6	141		-31		680Ω	R31,42,47-50																				
													6	142		-01		1KΩ	R2,5,6,7,8,43																				
													3	143		-53		2KΩ	R9,10,26																				
													6	144		-18		2.2KΩ	R11,19,21,32-34																				
													1	145		-69		1.5KΩ	R40																				
													4	146		-12		22KΩ	R12,35,39,52																				
													2	147	B	901550-07	RESISTOR CARBON 1/4W±5%	100KΩ	R25,R44																				
														148																									
commodore													TITLE: PCB ASSY. VIC-1541													DRWN BY: T. Tokuda		DATE: 11/16/82		ENGR: 40		DATE: 12/17		SIZE: B		REV: C		SHT: 5/8	
																										CHKD:				APPR: T.M		DATE: 12/18				1540048			

QUANTITY REQD PER PART / DASH NO.														ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
									02	01	149	B	901751-43	RESISTOR METAL OXIDE 1/4W ±1% 91Ω	R51					
									1	1	150		- 18	100Ω	R28					
									1	1	151		- 44	150Ω	R29					
									2	2	152	B	901751-45	RESISTOR METAL OXIDE 1/4W ±1% 9.1KΩ	R53, R54					
											153									
											154									
											155									
											156									
											157									
									10	10	158	B	325563-01	FERRITE BEAD	L2-7,13-16					
									S	S	159	B	903025-01	FERRITE BEAD	L2-7,13-16		SUBSTITUTE FOR ITEM 158.			
											160									
											161									
											162									
										2	163	B	4022048	SHIELD BOX						
										2	164	B	4022047	SHIELD CAP						
									2	2	165	B	1540023	HEAT SINK TO-3						
									1	1	166	B	1540011	HEAT SINK REGULATOR						
									A/R	A/R	167		904907-01	COMPOUND THER FOR HEAT SINK						
											168									
											169									
											170									
											171									
										4	4	172	B	325541-05	SCREW PAN HEAD / EXT TOOTH WASHER M3-12					
										2	2	173	B	905655-03	EXTERNAL TOOTH WASHER M3					
										4	4	174	B	905960-03	NUT HEX. M3					
											175									
											176									
										4	4	177	B	905477-02	TUBING VINYL 3.5 DIA X 5MM					
											178									
											179									
											180									
											181									
											182									
											183									
											184									
											185									

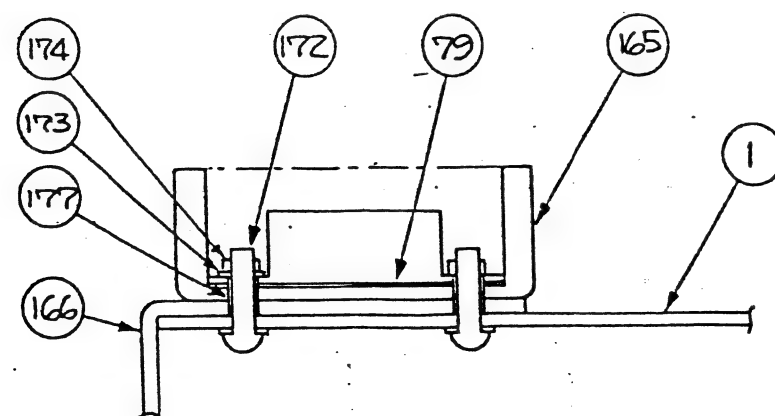
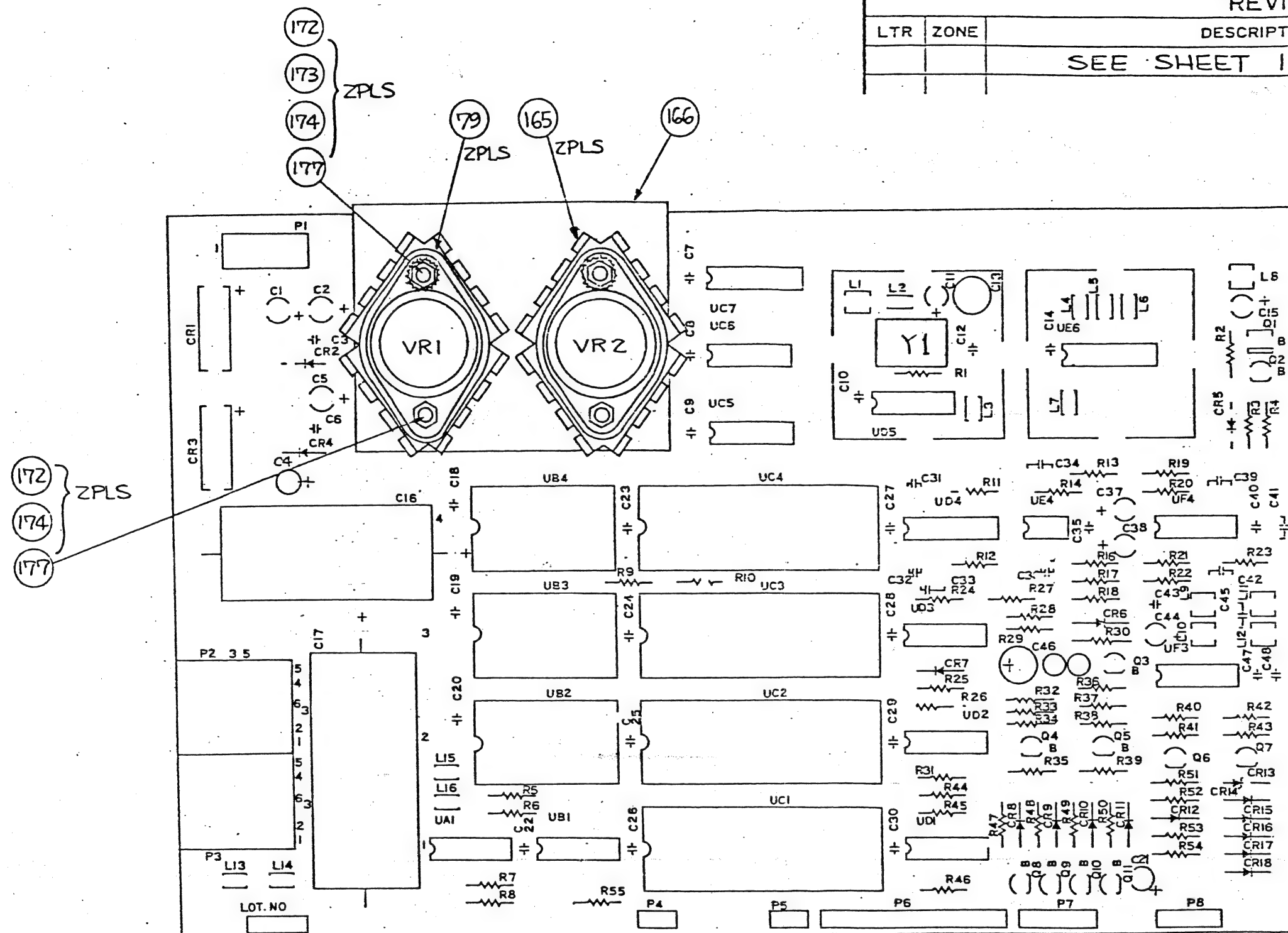
commodore

TITLE: PCB ASSY. VIC-1541

DRWN BY: T. Tokuda	DATE: 11/16/82	ENGR: 40	DATE: 12/17	SIZE: B	REV: E	SHT: 6/8
CHKD:		APPR: T.M	12/18			

REVISIONS

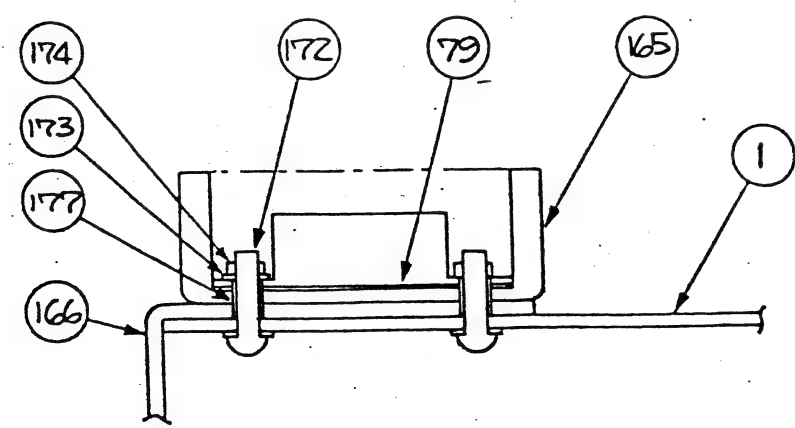
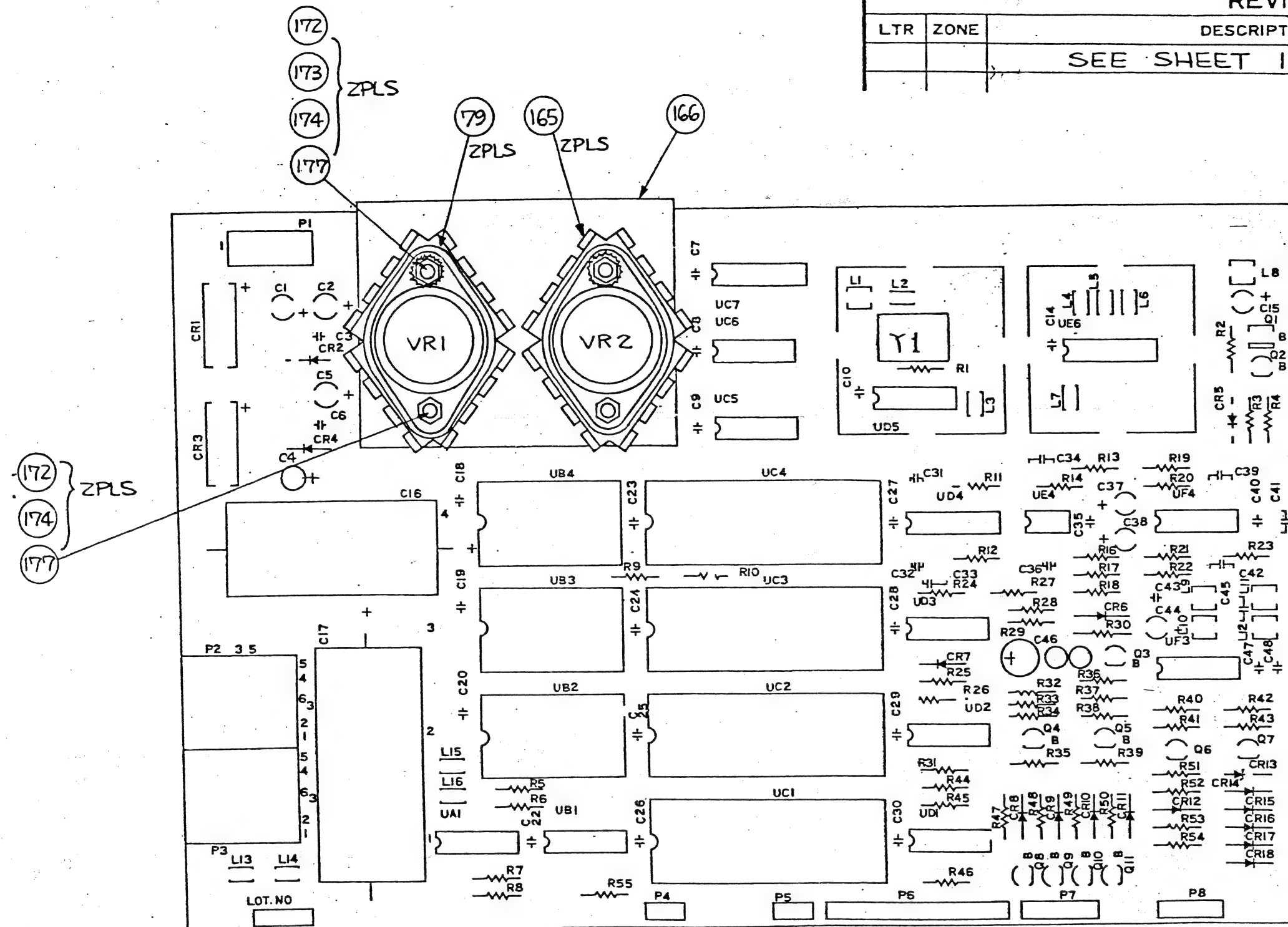
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS		DRAWN BY: K. Maruyama		DATE: 12/6/82	
.X .XX .XXX L'S		CHKD: T. Tokuda		12/7/82	
± ± ± ±		ENGR: J. Matsui		12/8/82	
MATERIAL:		USED ON: VIC-1541		NEXT ASSY:	
FINISH:					
commodore				P C B ASSY VIC-1541	
SIZE B	1540048-01	REV C			
SCALE NONE		SHEET 7 OF 8			

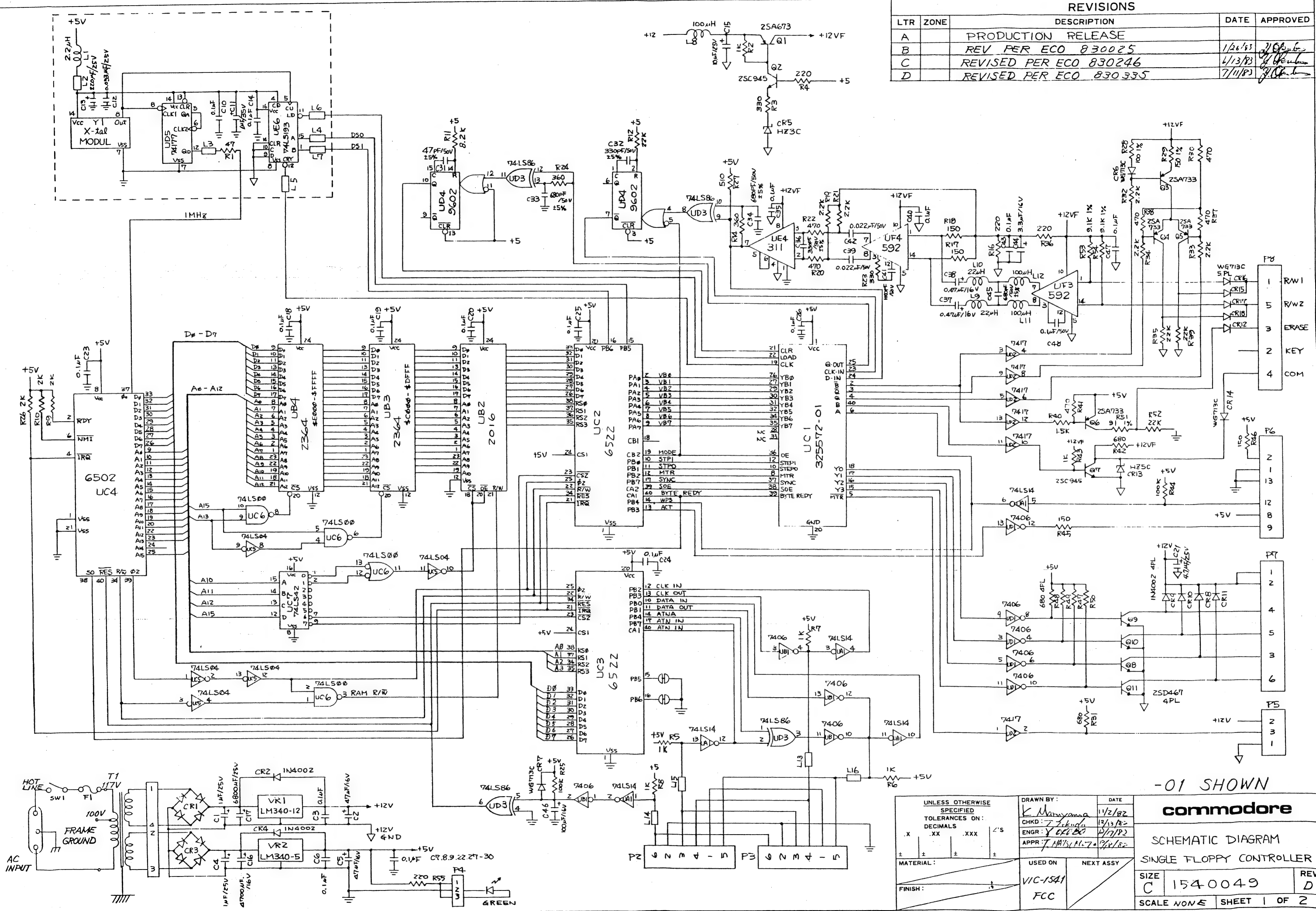
REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS		DRAWN BY: K. Maryama		DATE: 12/16/82	
.X .XX .XXX L'S		CHKD: Z. Zokuda		12/17/82	
± ± ± ±		ENGR: JG		12/18/82	
MATERIAL:		APPR: J. HARTMAN		12/18/82	
FINISH:		USED ON: VIC-1541		NEXT ASSY:	
<div> <div>commodore</div> <div>P.C.B. ASSY</div> <div>VIC-1541</div> </div>					
SIZE: B		1540048-02		REV: C	
SCALE: NONE		SHEET: 8 OF 8			

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE		
B		REV PER ECO 830025	1/26/83	J. G. [Signature]
C		REVISED PER ECO 830246	1/13/83	J. G. [Signature]
D		REVISED PER ECO 830335	7/11/83	J. G. [Signature]



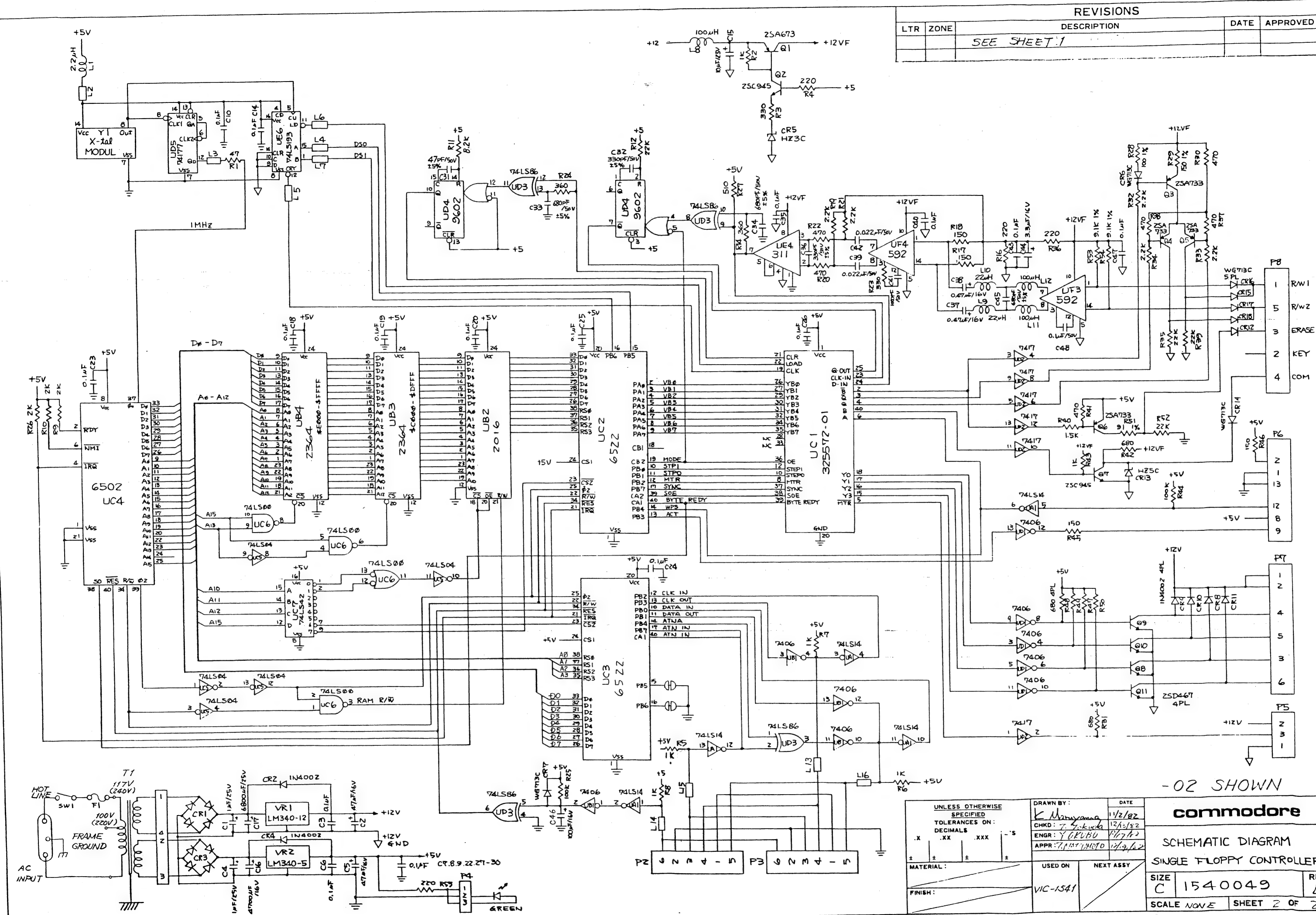
-01 SHOWN

commodore

SINGLE FLOPPY CONTROLLER	
SIZE	REV
C 1540049	D
SCALE NONE	SHEET 1 OF 2

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XX .XXX .4S	
MATERIAL:	FINISH:
DRAWN BY: K. Maruyama	
CHKD: J. G. [Signature]	
ENGR: J. G. [Signature]	
APPR: J. G. [Signature]	
DATE: 1/2/82	DATE: 1/13/82
USED ON: VIC-1541	NEXT ASSY: FCC

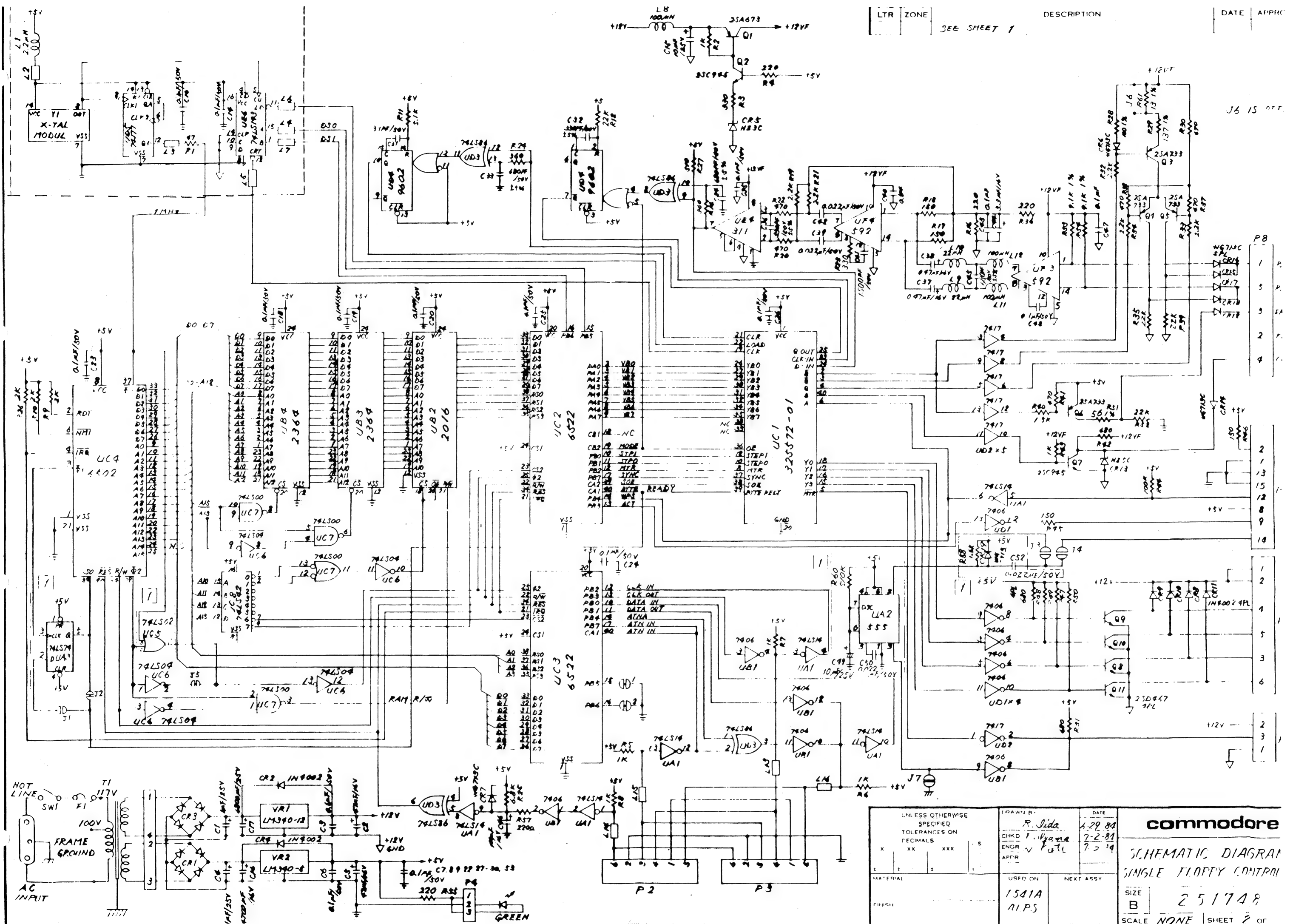
REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



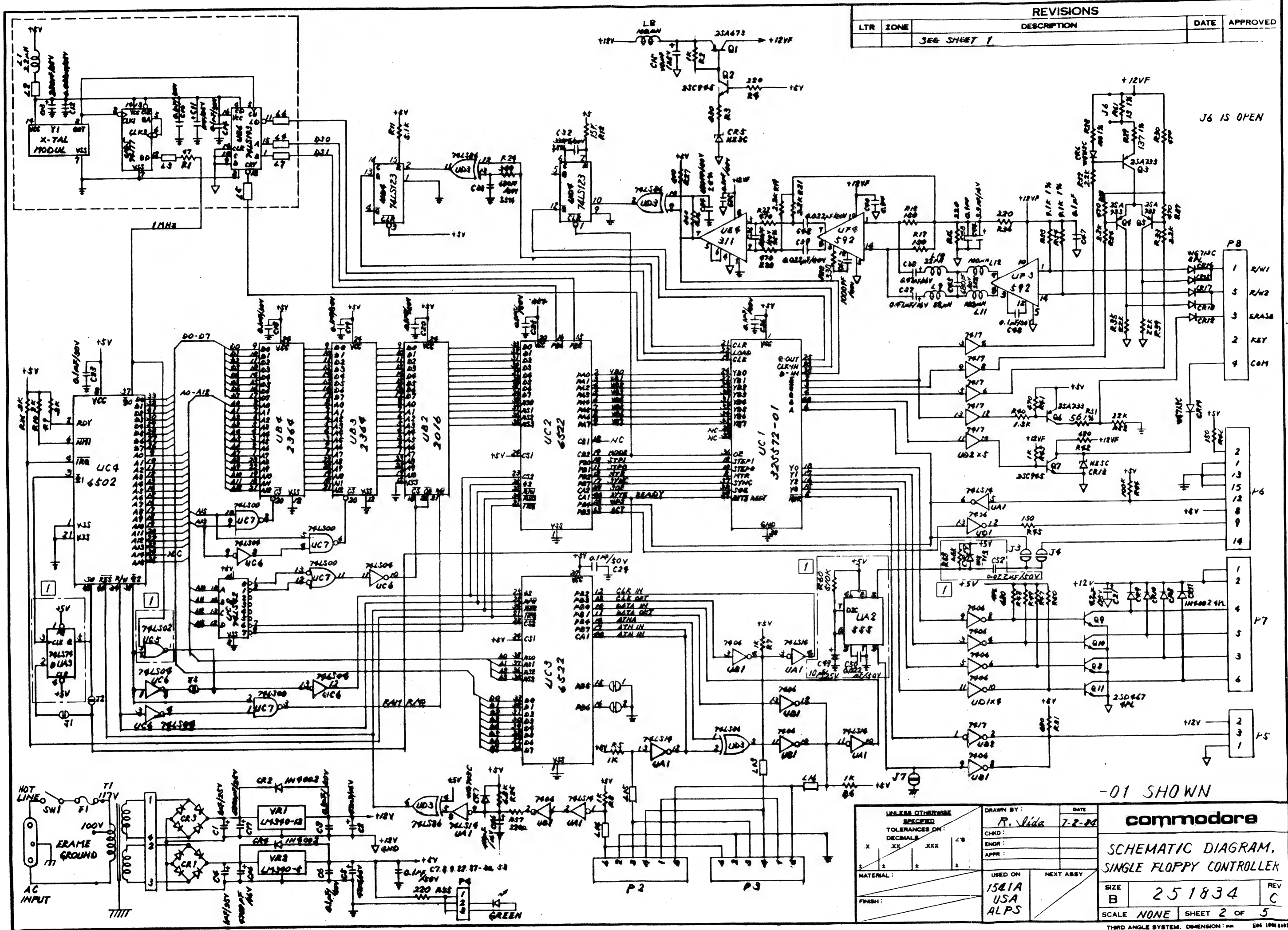
-02 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON:		DRAWN BY: K. Maruyama	DATE: 11/2/82
.X	.XX	CHKD: T. J. Kudo	12/1/82
		ENGR: Y. Kudo	11/7/82
		APPR: T. J. Kudo	11/9/82
MATERIAL:	USED ON: VIC-1541	NEXT ASSY:	
FINISH:			
SCALE: NONE		SHEET 2 OF 2	

commodore	
SCHEMATIC DIAGRAM	
SINGLE FLOPPY CONTROLLER	
SIZE: C	1540049
RE: D	



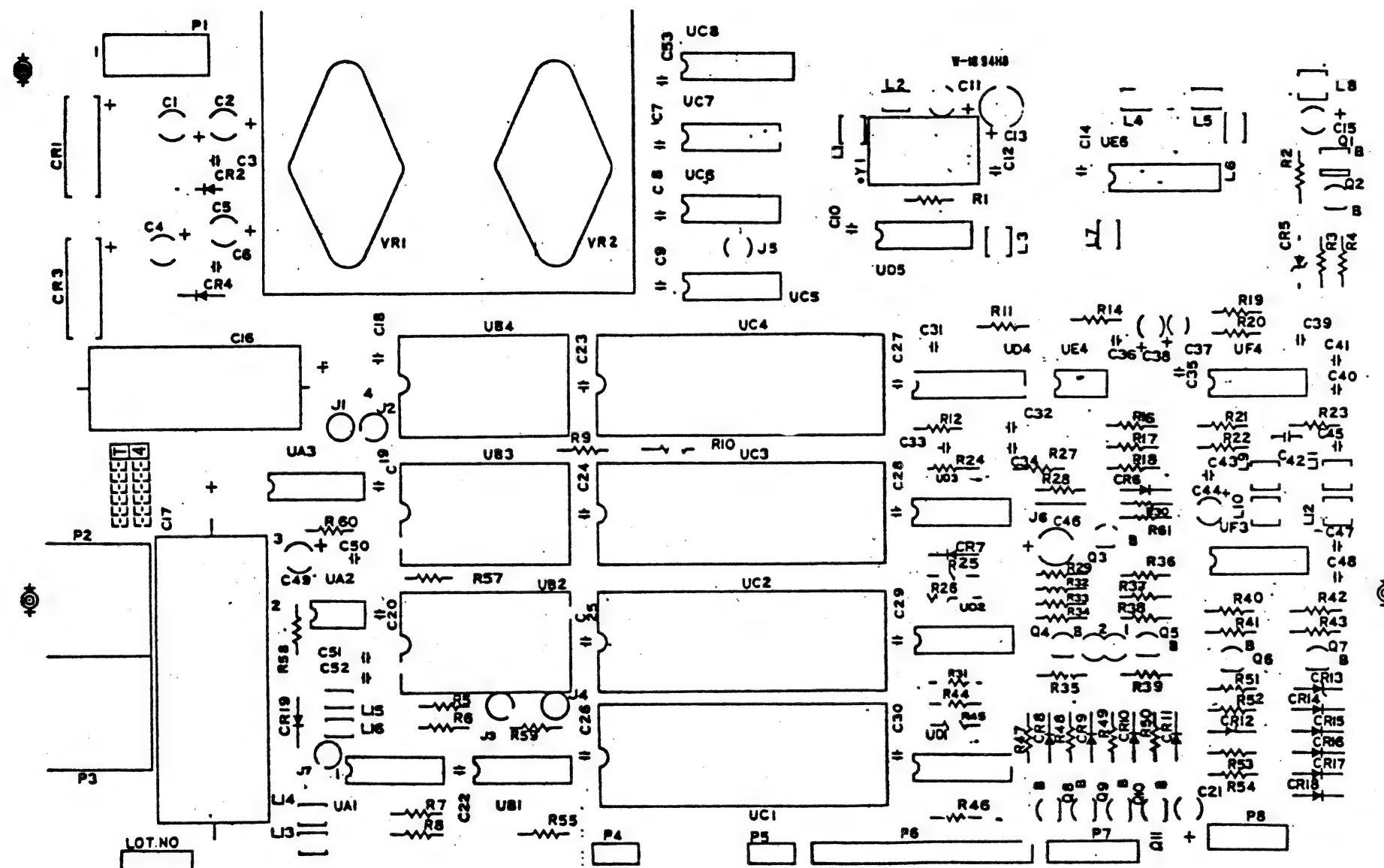
REVISIONS					DATE	APPROVED
LTR	ZONE	DESCRIPTION				
		SEE SHEET 1				



-01 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XX .XXX .4"		DRAWN BY: R. Vida		DATE: 7-2-84	
MATERIAL:		CHKD:		ENGR:	
FINISH:		APPR:		USED ON: 1541A USA ALPS	
NEXT ASSY:		SCALE: NONE		SHEET 2 OF 5	
SIZE: B		REV: C		THIRD ANGLE SYSTEM. DIMENSION: mm	

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE
		SEE SHEET 1	



SILKSCREEN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS X XX XXX 1/8		DRAWN BY: <i>[Signature]</i>		DATE: 5-22-88
		CHKD: <i>[Signature]</i>		5-22-88
		ENGR: <i>[Signature]</i>		5-22-88
		APPR: <i>[Signature]</i>		5-31-88
MATERIAL:		USED ON:	NEXT ASSY:	
FINISH:				
SIZE B		251830		REV A
SCALE NONE		SHEET 4 OF 6		

251834 C

1. FLOPPY DISK DRIVE

1. THIS SPECIFICATION DESCRIBES A THIN MINIFLOPPY DISK DRIVE FOR USE IN COMPUTER SYSTEM.

2. GENERAL SPECIFICATION

2-1 CAPACITY (UNFORMATTED)

MEDIA 201K BYTE
TRACK 5000 ~ 6153 BYTE

2-2 SECTOR METHOD

SOFT

2-3 SPINDLE ACTUATOR

BELT

2-4 HEAD POSITIONING METHOD

METAL BAND

2-5 ROTATIONAL SPEED

300 RPM

2-6 TRACK DENSITY

48 TPI

2-7 NUMBER OF TRACKS

35 (40 MAX)

2-8 TRANSFER RATE

250K BIT/S

2-9 RECORDING METHOD

GCR

2-10 ACCESS TIME

TRACK TO TRACK

12M SEC

SETTLING

15M SEC

2-11 MOTOR START TIME

1 SEC MAX

3. ENVIRONMENTAL

3-1 TEMPERATURE

OPERATING

10 ~ 47°C

STORAGE

-22 ~ 60°C

3-2 HUMIDITY (WITHOUT CONDENSATION)

OPERATING

20 ~ 80 %RH

STORAGE

1 ~ 95 %RH

4. RELIABILITY

4-1 ERROR RATE

SOFT READ ERRORS

1×10^{-9} / BIT

SEEK ERRORS

1×10^{-6} / SEKS

4-2 MTBF (MOTOR ON DUTY 20%)

8×10^3 HOURS

4-3 MEDIA LIFE

3×10^6 PASSES PER TRACK

REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	3-15-84	<i>[Signature]</i>
B		REVISED PER ECO 840312	9-10-84	<i>[Signature]</i>

5. POWER

5-1 12 ± 0.6 V DC

1.8 A MAX.

6. MOUNTING

6-1 TOP LOADING

YES

FRONT LOADING

DISKETTE VERTICAL

YES

DISKETTE HORIZONTAL

STEPPING MOTOR UP

NO

STEPPING MOTOR DOWN

YES

7. HEAD

SINGLE R/W GAP WITH SEPARATE STRADDLE ERASE

7-1 WRITE CURRENT

7 MA P-P

7-2 ERASE CORRENT

40 MA

7-3 READ OUTPUT

190MVP-P MIN.

(THROUGH 1541 AMP.)

AT 5162 FCI (TR.34)

1.4VP-P MAX.

7-4 RESOLUTION

AT 1768 FCI (TR.00)

EOUT 5162 FCI

EOUT 2581 FCI ≥ 0.55 (TR.34)

EOUT 3536 FCI

EOUT 1768 FCI ≤ 0.95 (TR.00)

8. STEPPING MOTOR

8-1 ONE STEP ANGLE

1.8°

8-2 OPERATING VOLTAGE

12V ± 10% DC

8-3 MOTOR CURRENT PER PHASE

400 MA MAX.

8-4 DRIVE MODE

1 PHASE

9. SPINDLE MOTOR

9-1 MOTOR SPEED

2340 RPM

9-2 STALL CURRENT

1.1 A

9-3 DRIFT

INITIAL

300RPM ± 1.5%

LONG TIME

300RPM ± 2.9%

10. PHYSICAL DIMENTION (INCLUSIVE OF FRONT PANEL)

10-1 HEIGHT

42.9 MM

10-2 WIDTH

193 MM

10-3 LENGTH

149.3 MM

10-4 WEIGHT

950 G (2.09 POUND) MAX.

11. TRACK ØØ LIMITER

+0.25 MM (+0.01 IN)

+0.1 MM (+0.004 IN)

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XXX ±		DRAWN BY: N. Hanamura		DATE 1-10-84	
X ±		CHKD: 2196, 40		3/13/84	
XX ±		ENGR: S. Tachibana		3-14-84	
XXX ±		APPR: J. H. S.		3-14-84	
L'S ±		MATERIAL:		USED ON	
FINISH:		NEXT ASSY		SCALE NONE	
<div>commodore</div> <div>FLOPPY DISK</div> <div>NEWTRONICS</div>				SIZE B	REV E
				251643	1 OF 5

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

12. HEAD ALIGNMENT (PERFORMED AT TR.16)

TESTED AT

FACTORY

FIELD

RADIAL

80 %

60 %

HYSTERESIS

80 %

60 %

ALIGNMENT STANDARD

DYMEK ALIGNMENT DISKETTE DK501-2

CE ALIGNMENT TRACK AT 1.9167±0.0003 INCHES
13. AZIMUTH (PERFORMED AT TRACK 39) ±12' MAX.

ALIGNMENT DISKETTE DK501-2

CE ALIGNMENT TRACK AT 1.5417±0.002 INCHES
14. DOOR LEVER TORQUE

14-1

OPENING TORQUE

0.4 - 1.4 kg·CM

14-2

CLOSING TORQUE

0.25 - 0.75 kg·CM
15. DRIVE MOTOR INTERFACE

SIGNAL LEVEL

TTL

FAN IN

5

LOGICAL LEVEL

MOTOR

H

OFF

L

ON
16. STEPPING MOTOR DRIVE SEQUENCE

PHASE.	ORG.	BRW.	YEL.	BLK.	
NO. 1	ON				TR. 2
NO. 2		ON			
NO. 3			ON		TR. 1
NO. 4				ON	
NO. 1	ON				TR. 0

* RED ; COMMON

17. SHOCK TEST

OPERATING

0.5 G MAX.(2~50Hz)

NON OPERATING OR STORAGE

CONTINUOUS 5 G MAX.

SINGLE 25 G MAX.

<div>UNLESS OTHERWISE SPECIFIED</div> <div>TOLERANCES ON:</div> <div>DECIMALS</div> <div> <div>X</div> <div>XX</div> <div>XXX</div> <div>4'S</div> </div> <div> <div>+</div> <div>±</div> <div>±</div> <div>±</div> </div>	DRAWN BY:		DATE		
	N. Hanamura		1-10-84		
	CHKD: J. On		3/13/84		
	ENGR: S. Takahashi		3-14-84		
APPR: J. Hanamura		3-14-84			
MATERIAL:		USED ON		NEXT ASSY	
FINISH:					
<div>commodore</div> <div>FLOPPY DISK</div> <div>NEWTRONICS</div>				SIZE	REV
B				251643	B
SCALE NONE				SHEET 2 OF 5	

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		

2. HEAD ASSEMBLY

1. SCOPE

THIS SPECIFICATION DESCRIBES A HEAD ASSEMBLY FOR USE D500 FLOPPY DISK DRIVE.

2. PHYSICAL

- 2-1 HEAD TYPE
- SINGLE R/W GAP SEPARATE STRADDLE ERASE
- 2-2 HEAD/MEDIA INTERFACE
- 1/NCONTACT, CERAMIC AND FERRITE WEAR SURFACES
- 2-3 READ/WRITE GAP
- 100 MICRO INCHES
- 2-4 CLEANING
- THE HEAD CONSTRUCTION SHALL ALLOW PERIODIC CLEANING WITH METHYL-ALCOHOL OR 1-1-1 TRICHLOROETHANE WITHOUT HARM.

3. PERFORMANCE

- 3-1 TEMPERATURE RANGE
- OPERATING 0~52°C
STORAGE -45~+71°C
- 3-2 HUMIDITY RANGE
- OPERATING 8~80%RH
STORAGE NOCONDITIONING
- 3-3 DESIGN LIFE
- 1600 HOURS IN CONTACT WITH DISKETTE AT 18 G PRESSURE PAD FORCE
- 3-4 PRESSURE PAD FORCE
- 18 ± 2 G A 0.197" DIAMETER PAD GCR
- 3-5 RECORDING METHOD
- GCR
- 3-6 RECORDING MEDIA.
- DATALIFE MD525-01
- 3-7 HEAD/MEDIA VELOCITY
- 45~70.7 INCHES/SEC, AT 300 RPM
- 3-8 DATA PACKING DENSITY
- UP TO 5536 FCI AT 300 RPM ON TRACK 39
- 3-9 WRITE CURRENT
- 7 MA P-P
- 3-10 ERASE CURRENT
- 40 MA
- 3-11 READ OUTPUT
- 190 MVP-P MIN. AT 5162 FCI (TR. 34)
(THROUGH 1541 AMP) 1.4 VP-P MAX. AT 1768 FCI (TR. 00)

3-12 RESOLUTION

$$\frac{EOUT}{EOUT} \frac{5162}{2581} \frac{FCI}{FCI} \geq 0.55 \text{ (TR. 34)}$$

$$\frac{EOUT}{EOUT} \frac{3536}{1768} \frac{FCI}{FCI} \leq 0.95 \text{ (TR. 00)}$$

3-13 OVERWRITE MODULATION

WRITE 1F (1768 FCI).
THEN WRITE 2F (3536 FCI)
THE RATIO OF 2F AMPLITUDE TO REMAINING (OVERWRITTEN) 1F IS 30 DB MIN.

4. ELECTRICAL

4-1 INDUCTANCE

READ/WRITE, PER LEG 600±120 μH
BALANCE, LEG TO LEG 1±0.2
ERASE 1.5 MH

4-2 RESISTANCE

READ/WRITE, PER LEG 25 OHMS MAX.
ERASE 20 OHMS MAX.

4-3 RESONANCE FREQUENCY

400 KHZ MIN.

4-4 INSULATION RESISTANCE

50 MOHMS MIN. (100 V DC)

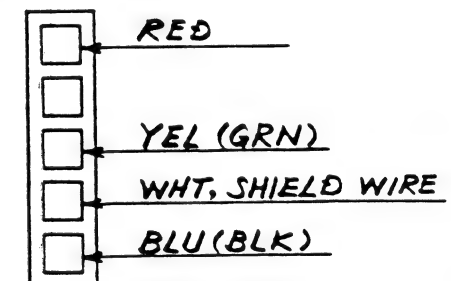
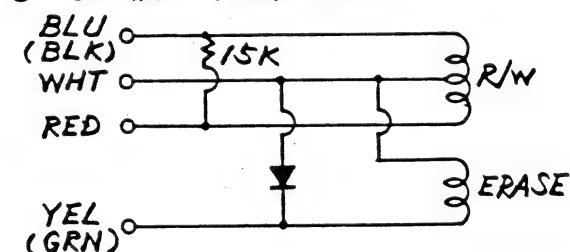
4-5 GROUNDING

BETWEEN COILS AND CORE
BACK BAR OF R/W CORE SHALL BE ELECTRICALLY BONDED TO R/W CENTER TAP

5. TEST CONDITIONS

THE AMPLIFIER WHICH WILL BE USED TO TEST READ/WRITE PARAMETERS SHALL HAVE AN INPUT IMPEDANCE OF 15 KOHMS SHUNTED BY 20 PF

6. CONNECTOR PIN



HOUSING
HIROSE HIF 36-5S-254C
OR EQUIVALENT
TERMINAL
HIROSE HIF 3-2428SCFA
OR EQUIVALENT

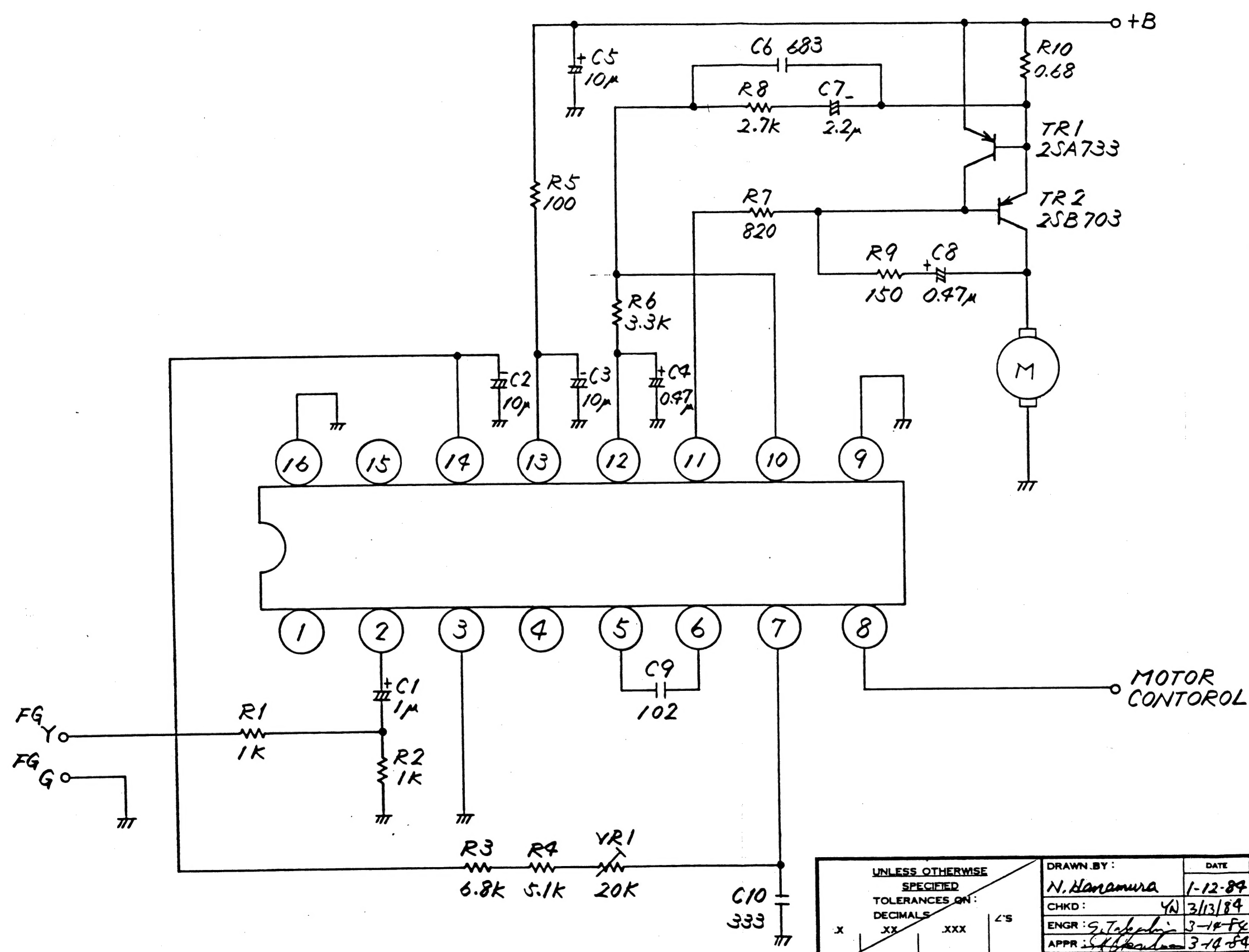
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .X .XX .XXX .4'S ± ± ± ±	DRAWN BY:		DATE		
	N. Hanamura		1-11-84		
	CHKD: 2Ph		3/13/84		
	ENGR: S. Takahashi		3-14-84		
APPR: [Signature]		3-18-84			
MATERIAL:		USED ON		NEXT ASSY	
FINISH:					
commodore FLOPPY DISK NEWTRONICS				SIZE	REV
				B	E
				SCALE NONE SHEET 3 OF 5	

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE / APPROVED
1		SEE SHEET 1	



LOW-LEVEL STRUCTURE RECEIVED TELEPHONE # _____ DECIMALS _____ X RE XXX 4'S		DRAWN BY <u>J. Tabase</u> DATE <u>10-5-78</u> CND <u>10/11/78</u> ENGR <u>10/11/78</u> APPR <u>10/11/78</u>		commodore FLOPPY DISK NEWTRONICS	
IN TERNAL _____ FRONT _____		USED ON _____ NEXT ASSY _____		SIZE <u>D</u> <u>251643</u> RE <u>2</u> SCALE NONE SHEET 5 OF 5	

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .XX .XXX .4'S ± ± ± ±		DRAWN BY:		DATE
		N. Hamamura		1-12-84
		CHKD:		YN 3/13/84
		ENGR: G. Takahashi		3-18-84
APPR: S. Hamamura		3-14-84		
MATERIAL:		USED ON	NEXT ASSY	
FINISH:				

commodore		
FLOPPY DISK NEWTRONICS		
SIZE B	251643	REV B
SCALE NONE		SHEET 4 OF 5

